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Texas Tech Univ, Lubbock Water Resources Center

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Robert S Kerr Environmental Research Lab, Ada, OK

Jul 78

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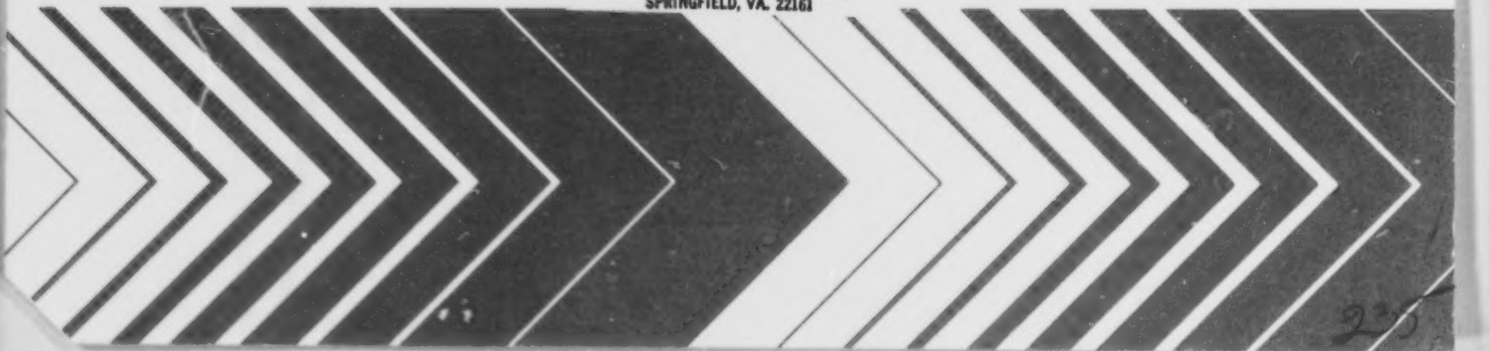

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16. ABSTRACT

Those laws and regulations of the fifty states which have an impact on the management of animal wastes are summarized, state-by-state, under the headings water, solid waste, air, commercial feed and fertilizer, agriculture, nuisance, soil and water conservation, and land use. The code provisions are then compared and the actual and potential effects of the codes on the economics of animal agriculture, on planning under Section 208 of P.L. 92-500, on the refeeding of manure, and on animal residue conversion processes are discussed in separate sections. Reasonableness and enforceability of the codes are evaluated.

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This report has been reviewed by the Robert S. Kerr Environmental Research Laboratory, U.S. Environmental Protection Agency, and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the U.S. Environmental Protection Agency, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

DAN MOODY WELLS, 1926-1977

This report is dedicated to Dan Moody Wells, Ph.D., P.E. who served as Project Manager and Technical Advisor of the study on which it is based. He had devoted the morning of August 12, 1977 to reading proof on part of the draft report and to discussing the content of some of the then unwritten portion of the report. He died of a heart attack that afternoon.

The name of Dan Wells is familiar to all who have followed the literature of animal waste management. Studies in which he participated at Texas Tech in the late 1960's were instrumental in establishing design criteria for environmentally acceptable beef feedlots. He collaborated in a "Study of Current and Proposed Practices in Animal Waste Management". (EPA-430/9-74-003). He served as Consultant on the Hamilton-Standard report, addressed the ANCA-EPA Conference on Beef Feedlot Waste Management (1973), and chaired the Agricultural Waste Management Committee of the American Society of Civil Engineers (1972-73). He served as full-time Agricultural Consultant to the National Commission on Water Quality.

His basic insistance on remaining cost-conscious as he strove for environmental improvement and his appreciative understanding of the men in American agriculture are reflected in this report.

FOREWORD

The Environmental Protection Agency was established to coordinate administration of the major Federal programs designed to protect the quality of our environment.

An important part of the Agency's effort involves the search for information about environmental problems, management techniques and new technologies through which optimum use of the nation's land and water resources can be assured and the threat pollution poses to the welfare of the American people can be minimized.

EPA's Office of Research and Development conducts this search through a nationwide network of research facilities.

As one of these facilities, the Robert S. Kerr Environmental Research Laboratory is responsible for the management of programs to: (a) investigate the nature, transport, fate and management of pollutants in groundwater; (b) develop and demonstrate methods for treating wastewaters with soil and other natural systems; (c) develop and demonstrate pollution control technologies for irrigation return flows, (d) develop and demonstrate pollution control technologies for animal production wastes; (e) develop and demonstrate technologies to prevent, control or abate pollution from the petroleum refining and petrochemical industries, and (f) develop and demonstrate technologies to manage pollution resulting from combinations of industrial wastewaters or industrial/municipal wastewaters.

This report is a contribution to the Agency's overall effort in fulfilling its mission to improve and protect the nation's environment for the benefit of the American public.

William C. Galegar

William C. Galegar, Director
Robert S. Kerr Environmental
Research Laboratory

ABSTRACT

This report summarizes the laws and regulations pertaining to animal waste management and closely related aspects of animal husbandry of each of the fifty states under the following headings: water, solid waste, air, commercial feed and fertilizer, agriculture, nuisance, soil and water conservation, and land use. A tabulation facilitates a comparison of some of the requirements of the fifty states.

The effects on current practices, the economic impacts, and the influence on 208 planning of the various code provisions are discussed.

The present status and legal implications of further development of refeeding, of biological conversion, and of thermochemical conversion are analyzed.

In general, the state agencies are handling the environmental problems of animal agriculture in a satisfactory manner. This is particularly true in states where a pattern of cooperation with the producers' organizations, the Agricultural Extension Service, and the Soil Conservation Service has developed.

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CONTENTS

Dedication to Dan Moody Wells, 1926-1977 . . . iii
Foreword . . . iv
Abstract . . . v
Abbreviations . . . viii
Acknowledgements . . . x

1. Introduction . . . 1
2. Conclusions . . . 2
3. Recommendations . . . 3
4. Summaries of the Laws and Regulations . . . 4
5. Comparison of Laws Among the States . . . 173
6. Economic Impacts . . . 178
7. Influence on 208 Planning . . . 186
8. Refeeding of Manure . . . 189
9. Animal Residue Conversion Processes . . . 194
10. Reasonableness and Enforceability . . . 202
11. Research Needs . . . 209

Appendices

A. Oregon's Regulations . . . 211
B. CCFA Pollution Control Series . . . 218
C. Metric Conversion Factors . . . 221

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LIST OF ABBREVIATIONS

In each state summary (p. 5-172) the enforcing agencies are cited by full title on first occurrence and by initials thereafter. These abbreviations are not included in the following list.

AAFCO -- Association of American Feed Control Officials

aff'd -- affirmed

ARS -- Agricultural Research Service (USDA)

ASAE -- American Society of Agricultural Engineers

ASCS -- Agricultural Stabilization and Conservation Service (USDA)

BAT -- Best available demonstrated control technology

BOD -- Biochemical oxygen demand

BPT -- Best Practicable Control Technology Currently Available

CCFA -- California Cattle Feeders Association

COD -- Chemical oxygen demand

DPL -- Dried poultry litter

DPW -- Dried poultry waste

DRW -- Dried ruminant waste

EPA -- Environmental Protection Agency (US)

ERDA -- Energy Research and Development Administration (US)

FDA -- Food and Drug Administration (US)

FWPCA -- Federal Water Pollution Control Administration

lb -- pound

MCF -- thousand cubic feet

mg/l -- milligrams per liter

ml -- milliliter

N.A. -- not available

NCWQ -- National Commission of Water Quality

NPDES -- National Pollutant Discharge Elimination System

Op -- opinion

PAW -- Processed animal waste

PAWP -- Processed animal waste products
pH -- logarithm of the reciprocal of the hydrogen-ion concentration
P.L. -- Public Law
Reg. -- regulation
RFP -- Request for proposal
SCD -- Soil Conservation District
SCS -- Soil Conservation Service (US)
SPDES -- State Pollutant Discharge Elimination System
TG -- Technical guide
USDA -- US Department of Agriculture
USEPA -- US Environmental Protection Agency
USGS -- US Geological Survey
USSCS -- US Soil Conservation Service
208 -- Section 208, P.L. 92-500

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A report of this magnitude is not prepared without the cooperation of a large number of knowledgeable people who have contributed their advice and time.

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Ms. Rita Schumacher assisted the legal advisor in typing drafts of the state summaries.

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S.C. Yin, Project Officer, Robert S. Kerr Research Laboratory, U.S. Environmental Protection Agency, Ada, Oklahoma, was most helpful in expediting the project. His contribution is sincerely appreciated.

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SECTION 1

INTRODUCTION

While all fifty states regulate the production of livestock, the legally-designated means of implementation and enforcement vary considerably. The statutes and administrative regulations used tend to apply explicitly in states having large concentrations of one or more types of livestock -- beef, dairy, sheep, swine, poultry, fur bearing animals, etc. The use of umbrella definitions of "wastes" and "pollutants," and the employment of nuisance abatement techniques on a case-by-case basis are, however, quite common.

In the present study, the laws and regulations of each of the states which pertain to animal waste management are briefed under eight subheadings: water, solid waste, air, commercial feed and fertilizer, agriculture, nuisance, soil and water conservation, and land use. The effects of these laws and regulations on current practices, their economic impacts, and their influences on 208 planning are examined, as are the legal questions involved in manure recycling (refeeding) and in the thermochemical processing of manure. Finally, the reasonableness and enforceability of the codes are discussed and suggestions for improvements and for further research are presented.

SECTION 2

CONCLUSIONS

1. Manure can become a valuable resource instead of being a serious pollutant. The techniques for its collection, storage, and utilization have been the objectives of intensive, successful research in recent years. Its historic use as a fertilizer and soil conditioner has been rediscovered, after an interim period in which commercial fertilizer produced by cheap energy made manure hauling uneconomical. Such alternatives as use in animal rations and as a thermochemical feedstock hold great promise.

2. Stockmen are not reluctant to cooperate in a rational program of pollution abatement. Many have willingly made expensive alterations in their facilities with little direct benefit to themselves in an effort to clean up the environment. Their whole-hearted cooperation may be obtained, however, only if they have confidence in the competence and integrity of the enforcing agency. In states where relations are most harmonious it is usual to find that the state agency works closely with the trade associations of the stockmen, with the US Soil Conservation Service, and with the Agricultural Extension Service.

3. The present regulatory scheme is effective, despite some legislative and administrative oversights and oversimplifications because the people implementing the legislation and regulations in the state agencies have, for the most part, taken a conciliatory and reasonable approach to the problems. If some of the existing laws and regulations were vigorously and blindly enforced, animal agriculture in the United States would suffer a loss far greater than the concomitant environmental benefit that might accrue from such a strategy.

SECTION 3

RECOMMENDATIONS

1. Regulations should be stated in terms of objectives; they should be as consistent and durable as possible. Guidelines; prepared with the participation of stockmen's trade organizations, the Soil Conservation Service, and the Agricultural Extension Service; should be established in such a way that compliance with them assures compliance with all regulations. Alternatives to the guidelines should, however, be fully acceptable if it can be shown that the alternatives would also assure compliance.

Many of the states have essentially this program at present. That of Oregon is reproduced as Appendix A of this report.

2. Each state which does not now have one should adopt a statute which provides that a permit from the appropriate state agency or other valid evidence of compliance with state regulations constitutes prima-facie evidence that no actionable nuisance exists.

3. Any governmental agency having responsibility for any aspect of pollution control affecting animal agriculture should provide for the continuing availability of an advisory board consisting of representatives of the affected branch or branches of the industry (cattle feeders, dairymen, poultrymen, etc.). Close cooperation should be maintained with the Soil Conservation Service and the Agricultural Extension Service. It has been amply demonstrated that the stockman will cooperate in environmental cleanup if he has confidence in the integrity and competence of the agency making the demands. This confidence can best be gained by soliciting the continuing input of the stockmen and of the field agencies they have learned to respect and trust.

Many of the producer's organizations have spent generously of their time and money in voluntary programs to secure compliance with environmental objectives. For example, the California Cattle Feeders Association has published a series of bulletins entitled "How to Control Feedlot Pollution," the first of which appeared in May 1970. Some excerpts from this series appear in Appendix B.

SECTION 4

SUMMARIES OF THE LAWS AND REGULATIONS STATE-BY-STATE

In order to facilitate comparison of the laws, agencies, and practices for the abatement of the pollution potential of manure and of manure-contaminated runoff, these will be discussed in this section, state-by-state under the following eight sub-headings:

1. water,
2. solid wastes,
3. air,
4. commercial feed and fertilizer,
5. agriculture,
6. nuisance,
7. soil and water conservation, and
8. land use.

Summaries and comparisons among the states will be presented in Section 5. The statutory material presented reflects legislation that has been reported in the official statutory codes through July 1, 1977. Legislation that was not incorporated into supplements or pocket parts by that date has not been included, except where such statutes have been received directly in correspondence with a state agency. The regulatory material was gleaned from two primary sources, the state agencies and the publication entitled "Environment Reporter" issued by the Bureau of National Affairs. Because of the lack of any formal publication requirement for many state administrative regulations it is recommended that individuals check with the appropriate state administrative agencies to ascertain the most current form of any regulations which may pertain to animal agriculture. For that purpose, addresses and telephone numbers are given for the agencies in each state having primary responsibility for the environmental protection of water, land, and air.

The units used, English or metric, are those of the laws and regulations. A table of conversion factors appears in Appendix C.

ALABAMA

Key to Legal Citation
Ala. Code ____, ____.
(Title # - Section #)
(22 - 140)

1. WATER

The Water Improvement Commission (WIC) is the state agency responsible for implementing the state's water pollution control program [22-140(12d)]. It has general authority to issue permits and orders, adopt rules and regulations and establish water quality standards (22-140). Agricultural wastes are not mentioned directly in the statute or the regulations and would fall under the category of "other wastes" [22-140(12a)]. Feedlots would fall under the general prohibition against the discharge of wastewater, unless there has been an 85% reduction in five-day B.O.D. and suspended solids content. Further cleaning of wastewater is required if the water quality standards are being violated. The WIC has utilized the services of the U.S. Agricultural Extension Service and the Soil Conservation Service (SCS) in having feedlots install properly sited anaerobic ponds with total retention of wastes and subsequent land application of digested sludge. There is no state regulation of the land application rate, as the WIC prefers to leave it to the discretion of the farmer and the SCS.

ADDRESS: Water Improvement Commission
3815 Interstate Court
Montgomery, Alabama 36109
205/277-3630

2. SOLID WASTE

The Department of Public Health, Division of Solid Waste is the state agency responsible for implementing the state's solid waste regulatory program (22-346). Livestock and poultry wastes are specifically excluded from the definition of solid wastes [22-346(b)].

ADDRESS: Department of Public Health
Division of Solid Waste
State Office Building
501 Dexter Avenue
Montgomery, Alabama 36130
205/832-6728

3. AIR

The Department of Public Health, Division of Air Pollution Control and Air Pollution Control Commission (APCC) are jointly responsible for implementing the state air pollution program [22-310(6)]. Air pollution is defined to include odors which do, or tend to, interfere with the enjoyment of life or property [22-310(3)]. The APCC may review all plans for new sources of air contaminants and deny permits if the plans are not in accord with the APCC's rules and regulations [22-310(8)]. County and city air pollution control programs may co-exist with the state program provided that they meet minimum standards and are approved by the APCC [22-310(10)]. There are no specific odor regulations in force. Odor problems are handled on a case-by-case basis after complaints have been received from the public. As of 1976 there had been no complaints filed against odors emanating from feedlot operations.

ADDRESS: Air Pollution Control Commission
645 South McDonough Street
Montgomery, Alabama 36130
205/834-6770

4. COMMERCIAL FEED AND FERTILIZER

All commercial feeds must be registered with the Commissioner of Agriculture (2-58). The Department of Agriculture and Industries has enacted regulations, effective January 1, 1977, which allow dried poultry waste, dried poultry litter and dried ruminant waste to be registered as commercial feeds and used in Alabama. To be eligible for registration, processed animal wastes must not contain any extraneous materials. In addition, the three categories of processed animal waste must meet limitations on percentage content of protein, fiber, ash, feathers and the like. There is also a labeling requirement imposed if the wastes contain drug residues. All persons who sell or distribute processed animal waste and/or commercial fertilizer must be licensed by the Commissioner of Agriculture [2-300(4)]. Unmanipulated animal manures are excluded from the definition of commercial fertilizer [2-300(3)].

5. AGRICULTURE

The Department of Agriculture enforces a statutorily-imposed total prohibition on the feeding of garbage to swine [2-281(39)]. The Department also requires that all livestock dealers be licensed (2-384-5). The state license, however, does not preclude local governments from adopting their own licensing and sanitary rules and regulations concerning livestock dealers (2-392). All dairies must be kept in a sanitary condition (2-190). Livestock markets must be licensed by the Department. Farmers raising cattle for their own consumption are exempted from the application of the statute [2-401(1)]. The Department also controls poultry wastes [2-471(19)]. All commercial poultry feeders must have adequate facilities for the disposal of dead poultry and poultry waste. The Department has enacted regulations requiring the installation of disposal pits in areas where water pollution is not a problem. Where there is a potential waste pollution problem, incineration is required. Minimum design standards for incinerators and disposal pits are set by the Department.

ADDRESS: Department of Agriculture and Industries
Beard Building
P. O. Box 3336
Montgomery, Alabama 36109

6. NUISANCE

Public nuisance is broadly defined by statute to include having unsanitary premises, conducting a lawful business or trade in such a manner that is likely to be a menance to the public health, and conducting an inherently unsanitary trade or business without complying with the regulations of the State Board of Health (22-75). A public nuisance may also be abated by county boards of health (22-76). The State Board has inspection authority over all dairies and slaughter pens or houses (22-7). County boards are authorized to exercise special supervision over dairies and slaughterhouses (22-8). All cities and towns have general power to maintain health and cleanliness within their boundaries (37-491). All municipalities may abate and enjoin nuisances (37-505-6).

7. SOIL AND WATER CONSERVATION

There is a statewide Soil and Water Conservation Commission with overall advisory powers (2-660). Local Soil Conservation Districts (SCD's) may be created by local option (2-661). They may exercise land use regulatory powers after a local referendum approves such powers (2-664). Land use regulations are enforced by the SCD's through the imposition of penalties on farmers who are in violation of an ordinance (2-665).

8. LAND USE

Cities may zone within their boundaries with no exception being made for agricultural uses (37-772). Regional planning commissions exist, but they have no binding authority over landowners (37-809). County zoning is limited to management and use programs in flood-prone areas (12-343). There is no general authority for a county to zone. There is no exemption for agricultural uses in flood-prone areas (12-356). Livestock, agricultural products and poultry are exempt from the ad valorem tax (51-2).

The Alabama program has not been approved for the National Pollutant Discharge Elimination System.

ALASKA

Key to Legal Citation
Alaska Stat. §____
(Section #)
(46.03.020)

1. WATER

The Department of Environmental Conservation (DEC) is the regulatory body charged with enforcement of the water pollution program (46.03.020). Agricultural wastes are not specifically defined by statute (46.03.900). However, animal waste from buildings, residences and other places is defined to be sewage (46.03.900). The DEC may require the submission of plans for all sewage disposal or treatment facilities whether publicly or privately owned (46. 03.090). All individuals conducting commercial or industrial operations which result in the disposal of liquid waste into the waters of the state must procure permits from the DEC (46.03.100). This requirement does not apply to a person discharging domestic sewage into a sewer system (46.03.100). The DEC has the authority to promulgate pollution standards and regulations (46.03. 070). It has not promulgated any regulations that are particularly applicable to the feedlot operation. It does require "best practicable control technology" for industrial waste discharges. There is a general prohibition against the pollution of the water of the state (46.03.710). Pollution is defined as the contamination or altering of waters so as to create a nuisance or to create unclean, noxious, impure or unfit conditions that are or may be harmful to the public health (46.03.710). Finally, no person may construct any kind of sewer system or treatment works, including lagoons, without receiving approval by the DEC (46.03.720).

ADDRESS: Department of Environmental Conservation
Water Programs Division
Water Quality
Pouch O
Juneau, Alaska 99801
907/586-6721

2. SOLID WASTE

The DEC is also responsible for the prevention of "land" nuisance (46.03. 810). No person may pollute or add to the pollution of the land--surface or subsurface (46.03.710). Even the placement of manure on one's own land may be declared to be a land nuisance and may be abated by the DEC (46.03.810). Municipalities of the state may regulate the collection and disposal of garbage and solid wastes (29.48.035). There are no regulations covering feedlot-related problems of land pollution.

3. AIR

The DEC is also given the responsibility for controlling air pollution (46.03.020). It may enact regulations which can prevent, abate or control air pollution (46.03.140). Air contaminants are defined to include odorous substances (46.03.900). Any municipality with a population in excess of 1,000 may establish and administer its own air pollution control program on an areawide basis if the program is consistent with the state regulations (46.03. 210). Each such program must be approved by the DEC (46.03.210). If a local program is not being enforced properly, the DEC may, after public hearing, step in and enforce the provisions of the local air pollution program (46.03.220). All emissions which are injurious to health or welfare are prohibited (46.03.140, 46.03.710, Reg. 18AAL50.110).

4. COMMERCIAL FEED AND FERTILIZER

Alaska has no laws dealing with commercial feed or fertilizers.

5. AGRICULTURE

The Commissioner of Natural Resources has the general authority to promulgate regulations dealing with the sanitary conditions of agricultural operations (03.05.020).

ADDRESS: Department of Natural Resources
Division of Agriculture
Box 800
Palmer, Alaska 99645

6. NUISANCE

The DEC is primarily responsible for the control of water, air and land nuisances (46.03.800-810). Water nuisance is defined to include the placement of dead animal carcasses; excrement; or any putrid, nauseous, noisome, decaying, deleterious or offensive substance into any waters of the state, including wells or ponds, which are or may be used for domestic purposes (46.03.800). Anyone guilty of refusing to abate the nuisance upon order of the DEC is guilty of a misdemeanor and is subject to imprisonment and a fine, as well as to the payment of the cost of the damage caused by the act of nuisance (46.03.800). An air or land nuisance is defined as the placement upon any lot, street or premises of any garbage, offal, dead animals or any other matter which would be obnoxious (46.03.810). The placement of any noxious material, including garbage, offal or dead animals on any premises owned by the individual, would also be a nuisance and would be abatable by the DEC (46.03.810). In addition to these nuisance abatement powers, the state Commission of Health and Social Services is authorized to promulgate rules and regulations regarding public health nuisance and sanitary practices in the interest of public health (18.05.040). In addition, all municipalities have the authority to condemn and abate all public nuisance and hazards (29.48.035).

7. SOIL AND WATER CONSERVATION

There is a statewide soil conservation district whose purpose is to provide for the orderly development of land and for the conservation of soil and soil resources (41.10.020-030). The district is operated by a soil conservation board made up of at least three resident farmers (41.10.060). The board advises the Commissioner of Natural Resources in matters relating to soil conservation (41.10.100). Operations of the district may not be carried out without the prior approval of the land occupier (41.10.120). The Commissioner of Natural Resources may create subdistricts of the statewide soil conservation district in response to a petition signed by 25 or more land occupiers setting out the proposed boundaries (41.10.130).

8. LAND USE

Boroughs (equivalent to the usual counties) are given the authority to plan and zone (29.33.070). Any city located within a borough, but more than 25 miles from the boundary of the borough seat, may have some autonomous zoning powers if these be granted by the borough assembly (29.33.070). There is no exception for zoning for agricultural uses (29.33.090). Farm or agricultural lands that are being used actively for farm purposes may be assessed only on the basis of full and true value for farm use. If the farmland be sold, leased or otherwise disposed of for use incompatible with farm use, the owner will be liable for the payment of an amount equal to the additional tax at the current mill levy together with 8% interest for the preceding seven years in which the land has been assessed at only farm value (29.53.035). Farm use is defined to include the feeding, breeding and management of livestock; dairying; or other agricultural use for profit (29.53.045).

The Alaska program has not been approved for the National Pollutant Discharge Elimination System.

ARIZONA

Key to Legal Citation
Arizona Rev. Stat. §____
(Section #)
(36-1852)

1. WATER

The Department of Health Services (DHS), Division of Environmental Health, Bureau of Water Quality is the state agency responsible for implementing the state's water pollution program (36-1852, 1853). There is also an advisory Water Quality Control Council (WQCC), which includes at least one representative from the livestock industry and the Dean of the Agricultural College of the University of Arizona (36-1853). The WQCC adopts water-related rules and regulations for DHS (36-1854). Point sources are defined to include, specifically, concentrated animal feeding operations (36-1851). The DHS does not issue state permits; it regulates pursuant to the federal NPDES guidelines only. Agricultural wastes are defined to be both pollutants and wastes (36-1851). The DHS reviews all plans and specifications for new animal feeding operations, regardless of size, which may cause a discharge (36-1859). It is unlawful to keep livestock penned over, or on the borders of, a body of water so that the water becomes polluted (13-603).

ADDRESS: Department of Health Services
Bureau of Water Quality
1740 West Adams
Phoenix, Arizona 85007
602/271-5453

2. SOLID WASTE

The DHS, Bureau of Sanitation is the state agency responsible for implementing the state's solid waste pollution control program (36-136). The DHS is authorized to define and prescribe regulations dealing with manure and other objectionable wastes (36-136). Although the DHS defers principal enforcement and regulatory authority to the Livestock Sanitary Board, it has enacted two sets of regulations which it utilizes to regulate animal feeding operations. Reg. 9-8-4 deals with "Refuse and Other Objectionable Wastes." All owners or occupiers of the premises must be responsible for the sanitary conditions thereon (Reg. 9-8-413). Manure is one of several wastes which the refuse collecting service may choose not to dispose of (Reg. 9-8-415). All manure must be removed from enclosures as often as is necessary to prevent a health hazard, and must be handled and stored so as not to maintain a nuisance (Reg. 9-8-421). The regulations also require that manure be disposed of through use of a sanitary landfill, composting, or incineration or be used as a fertilizer in such a manner as not to create insect breeding or a nuisance (Reg. 9-8-431). No special permit is required to dispose of manure (Reg. 9-8-432). The second regulation deals with objectionable facilities and animals (Reg. 9-8-14). In populous districts manure must be kept in a covered, watertight pit or chamber. Manure on farms, other than dairy farms, need not be so protected unless it be specifically required by the DHS or local boards of health (Reg. 9-8-1411). No pigsty or piggery may be built on marshy ground, on land subject to overflow, within 200 feet of any stream or other source of water supply, or within 300 feet of an inhabited house (Reg. 9-8-1412). Manure may not be allowed to accumulate in any place where it can prejudicially affect any source of drinking water (Reg. 9-8-1411). Both local boards of health and the DHS have enforcement authority (36-136). The DHS is required to prepare a comprehensive statewide solid waste management plan, including provisions for reclamation and disposal of solid wastes (36-132.01).

ADDRESS: Department of Health Services
Bureau of Sanitation
1740 West Adams
Phoenix, Arizona 85007
602/271-6141

3. AIR

The DHS, Bureau of Air Quality is the state agency responsible for implementing the state's air pollution control program (36-1706). The definition of an air contaminant includes odor (36-1701). The DHS has opted to delegate its responsibility over feedlot odor problems to the Livestock Sanitary Board. In addition, extensive air pollution control authority is granted to each

County Board of Supervisors (36-773, 774). Such boards may create air pollution control districts and may enact rules and regulations (36-774, 779).

ADDRESS: Department of Health Services
Bureau of Air Quality
1740 West Adams
Phoenix, Arizona 85007
602/271-5306

4. COMMERCIAL FEED AND FERTILIZER

All commercial feeds that are distributed within the state must be registered with the office of the State Chemist (24-911). In promulgating feed regulations, the Chemist may call upon an Advisory Committee made up of people in the field of agriculture (24-904). Commercial fertilizers are so defined as to exclude manures which are not artificially mixed with any material or materials (3-262). All commercial fertilizers must be registered with the State Chemist (3-272). It is unlawful for anyone to sell manure to which water or any other substance has been added unless there is affixed to the lot or container a statement that such artificial addition has been made (3-278).

5. AGRICULTURE

The Livestock Sanitary Board (LSB) is composed of representatives from various feeding operations including cattle feeding, range cattle growing, the dairy industry, the sheep and goat industries and the swine producing industry (24-102). The LSB is authorized to regulate beef cattle feedlots of more than 500 head (24-391). Any feeding operation that comes under LSB control must receive a license in order to operate (24-392). These licenses are issued for a term of one year (24-392). Operators must provide reasonable methods for the disposal of animal excrement; provide control procedures to prevent and eradicate pests; provide adequate drainage of surface waters falling upon the area occupied by feedlots; have available at all times mechanical means of scraping, cleaning and grading feedlots; and conduct the operation in conformity with established practices of the industry (24-394). The LSB has by regulation created a Feedlot Advisory Committee of between five and seven members. The LSB hears and decides all cases pertaining to feedlot complaints after its own investigation (Reg. 3-9-04). The LSB is both the adjudicatory and enforcing agency on feedlot complaints. The LSB has classified feedlots into three categories according to location. The closer the feedlot is to a populated area or water source, the more stringent become the performance standards relating to solid waste removal, sanitary procedures and air pollution. Category A feedlots, those which are closest to a populated area or water source, must prevent any dust from arising and spreading; use reodorants, and deodorants or other effective and economically practical means to remove offensive odors; remove manure and clean pens at least three times per year; keep stacked manure after removal to a minimum and in as dry a condition as possible; employ methods of operation to eliminate stagnant water; and employ such measures as are necessary to control flies (24-391 to 397). The

LSB also has general regulatory authority over other types of animal and poultry feeding operations, although no detailed regulations exist for these other types of operations (24-104). The LSB also regulates the feeding of garbage to swine (24-941). No person may feed garbage to swine without first obtaining a permit from the LSB (24-944). All garbage must be processed by boiling for at least 30 minutes prior to feeding (24-947). All permit holders must be in compliance with the LSB regulation which requires that an approved cooker be properly installed on the premises, an approved concrete slab or other impervious layer be available for the feeding of garbage, the premises be reasonably drained, and reasonable methods be provided for removal of manure. Individually operated swine garbage feeding premises must be separated from other such operations by a minimum distance of 200 feet (Reg. 3-9-05).

The State Dairy Commissioner is also given authority to regulate dairy barns and vehicles involved in the transportation of milk products but as of this date he has not promulgated any regulations dealing with the problem (3-605).

ADDRESS: Livestock Sanitary Board
1688 West Adams
Phoenix, Arizona 85007
602/271-4196

6. NUISANCE

Public nuisance is defined to include any condition which constitutes a breeding place for rodents, flies or other insects; any condition involving wastewater or organic wastes which is a threat to the public health; or the pollution or contamination of any drinking water (36-601). The DHS has primary authority to enforce, investigate and abate all public nuisance (36-601). City and county boards of health are also empowered to abate such nuisance (36-602). Local boards of health may also enact sanitary regulations and may regulate feedlots, although an opinion of the attorney general has suggested that they may not impose requirements more stringent than those of the LSB (36-167, Op. At-Gen 65-4). The DHS also has the authority to investigate water, solid waste and air pollution that rises to the level of a nuisance (Reg. 9-8-432). The maintaining of a public nuisance is a criminal misdemeanor (13-601). In a celebrated recent case, a feedlot was forced to move from the vicinity of a developing retirement community, but only after the developer paid the costs of relocation (Spur Industries v. Del Webb Development, 494 P.2d 700.).

7. SOIL CONSERVATION DISTRICTS

Within the State Land Commission there is the Division of Natural Resource Conservation which has umbrella authority over local natural resource districts (45-2011, 2013). Local districts may be created by referendum (45-2034). Local districts do not possess land use powers (45-2054).

8. LAND USE

Counties are given the authority to zone and plan (11-802). The county may adopt a county-wide ordinance, but the statutes provide for local option elections, whereby residents may opt out of the county-wide zoning ordinance and have one especially created for a particular area (11-825, 826). No exemption is given agricultural uses. Cities have the authority to zone and are specifically empowered to classify land for agricultural use and regulate it (9-462.01). All real and personal property used for agricultural purposes is to be assessed at 18% of full value (42-227). Range livestock is assessed as real estate, while transient livestock is assessed as personal property (42-234, 235).

The Arizona program has not been approved for the National Pollutant Discharge Elimination System.

ARKANSAS

Key to Legal Citation
Ark. Stat. Ann. § ____
(Title #-Section #)
(82-1902)

1. WATER

The Department of Pollution Control and Ecology (DPCE), Division of Water Pollution Control is the agency responsible for implementing the state's water pollution control program [82-1904(12)]. There is also a Pollution Control Commission of which the state Soil and Water Conservation Commissioner and a representative from the agricultural and livestock fields are members (82-1903). Agricultural wastes are not specifically defined by the statutes. They would, however, fall either under the definition of sewage, which includes all excrements or other discharge from animals, or "other wastes" (82-1902). A disposal system is defined to include any system for the disposing of sewage or other wastes (82-1902). The Commission performs mostly advisory functions (82-1903). The DPCE may adopt water quality standards, issue orders and permits, and require approval of plans and specifications for disposal systems (82-1904). Its authority includes the ability to issue orders prohibiting or abating the discharge of any sewage into the waters of the state [82-1904(6)]. All persons who operate disposal systems, which would seem to include the feedlot operator who has a discharge, must furnish information and must permit examination and survey of the system (82-1905). It is unlawful for any person to place any sewage or other wastes in a place or location where it is likely to cause pollution (82-1908). Permits are required for the construction, modification or operation of any disposal system or for the construction and operation of any facility from which there would result a discharge of any waste into the waters of the state (82-1908). There would apparently be no exemptions for small feedlot operators if a discharge takes place. The DPCE has promulgated water quality standards which it enforces. Feedlots would come under the general effluent standards found in Regulation number 2. These standards cover the following subject matter areas: temperature, color, turbidity, taste and odor, suspended solids, floating materials, deposits, pH, dissolved oxygen, bacteria, and mineral quality. The fecal coliform content standard depends upon the classification of the receiving waters. In class AA and A waters fecal coliform content may not exceed a log mean of 200/100ml, while in class B waters the fecal coliform content shall not exceed a log mean of 1000/100ml.

ADDRESS: Department of Pollution Control and Ecology
Water Pollution Control Division
8001 National Drive
Little Rock, Arkansas 72209
501/371-1701

2. SOLID WASTE

The DPCE, Division of Solid Waste is the agency responsible for implementing the state's solid waste regulatory program (82-2703-2707). It is given rule-making power and responsibility to require approval of plans and specifications for solid waste disposal facilities and sites (82-2707). It is also authorized to issue permits dealing with solid waste disposal systems (82-2707). Although the definition of solid waste includes solid and semi-solid waste materials from agricultural activities, it has been the continuing policy of the solid waste division of the DPCE to ignore the agricultural operations. The only type of agricultural operation for which the solid waste division requires a permit is the commercial burying of dead carcasses, primarily chickens. On-site disposal of manure would not be regulated even though there were potential pollution problems from solid waste disposal in certain portions of Arkansas heavily populated by pig and chicken farms. The ongoing 208 planning study will apparently consider the problem of solid waste pollution caused by on-site disposal of manure. The solid waste division prefers to have all agricultural operations receive their authority from the Water Pollution Control Division.

ADDRESS: Department of Pollution Control and Ecology
Solid Waste Division
8001 National Drive
Little Rock, Arkansas 72209
501/371-1701

3. AIR

The DPCE, Division of Air Pollution Control is the agency responsible for implementing the state's air pollution control program (5-908). Air contaminants are broadly defined but do not specifically include odors (82-1933). Agricultural operations, including the growing or harvesting of crops, the raising of fowls or animals, and the use of equipment for agricultural purposes are specifically exempted from the air pollution control laws (82-1934).

ADDRESS: Department of Pollution Control and Ecology
Air Pollution Division
8001 National Drive
Little Rock, Arkansas 72209
501/371-1136

4. COMMERCIAL FEED AND FERTILIZER

All concentrated commercial feeding stuffs must be registered with the State Plant Board before sale within the state (78-703). Concentrated commercial feedstuffs include all feed used for livestock and poultry except whole hays, straws, and corn stover. In addition, all commercial feestuffs must be properly labeled (78-701). An exemption from the registration and labeling requirements is made for concentrated commercial feedstuffs which are manufactured or mixed and used for feeding to poultry or animals owned by such manufacturer or mixer (78-719). There is also an exemption made for a manufacturer of feedstuffs who has entered into a joint venture with a feeder of poultry or animals (78-719). All those who seek an exception to the application of the registration and labeling requirements must obtain a permit from the State Plant Board (78-720). All sellers of commercial fertilizers must also be registered with the State Plant Board (77-701). The State Plant Board shall, each year, promulgate a list of approved ratios and minimum grades for mixed commercial fertilizers (77-701). There is no particular exemption for unmanipulated manure. However, if a farmer would use the manure on his own land, there would apparently be no requirement of registration.

5. AGRICULTURE

The Arkansas Livestock and Poultry Commission is vested with the responsibility of supervising the "livestock sanitary work" of the state (78-401, 78-310). All stockyards and auction markets must be maintained in a reasonably sanitary condition (78-446). The only regulation enacted by the Commission deals with the sanitary conditions of sales markets. There is apparently no regulation of the feeding of garbage to swine.

6. NUISANCE

The State Board of Health is given the authority to examine, investigate and abate nuisance (82-112). All cities and towns may cause the abatement of any nuisance in their jurisdiction, and they may delegate that responsibility to the local Board of Health (19-2303). The violation of any water pollution regulation or statutory provision is made a public nuisance (82-1908).

7. SOIL AND WATER CONSERVATION

The Arkansas Soil and Water Conservation Committee is the statewide agency having the duty to develop a soil conservation plan (9-904). Local soil conservation districts may be organized by petition of 25 landowners

(9-905). Local districts may exercise land use regulations upon the adoption of a land use plan through a local election (9-910). These land use ordinances may be enforced through the local courts (9-911).

8. LAND USE

Counties have the authority to create comprehensive plans (17-1103). Such plans may provide recommendations for the conservation of natural resources including the land (17-1104). Such a plan is to be primarily related to county public expenditures and not to private land use (17-1105). Municipalities have the authority to zone within their jurisdictions (19-2804,2805). Cities may zone outside of their jurisdictional limits along navigable streams for a distance of five miles outside the corporate limits in either direction and for a distance of two miles laterally from the thread of the stream (19-2804.2). There are no exemptions made for agricultural uses.

9. MISCELLANEOUS

Any person to whom livestock are entrusted for the purpose of feeding shall have a lien upon such livestock for the amount that may be due for such feeding, herding or pasturing (51-917). The gross receipts and proceeds derived from the sale of agricultural fertilizer are exempt from the gross receipts tax (84-1905.2)

The Arkansas program has not been approved for the National Pollutant Discharge Elimination System.

CALIFORNIA

Key to Legal Citation
Cal.____ Code §_____(West)
[(Subject) Code §]
(Water Code §175)

1. WATER

The Water Resources Control Board (WRCB) is the agency primarily responsible for implementing the state's water pollution control strategy (Water Code §13140-13171). Two members must be engineers (Water Code §175). Regional Boards, as well, have extensive regulatory authority; each of the nine regional boards must include at least one agricultural member. Each regional board is required to propose a basic plan which must deal with the problem of feedlot pollution within its region (WC §13240). While the WRCB and regional boards regulate the water pollution strategy, cities, counties, or the Attorney General may at any time bring an action to abate a nuisance (WC §13002). Waste is so defined as to include any and all waste substances from agricultural operations (WC §13050). All discharges of wastes must be reported to the appropriate regional board (WC §13260). The regional board may impose any requirement on said discharge consonant with the water quality standards (WC §13263). The regional board may issue a compliance order to correct the situation (WC 13300-1). The WRCB has issued minimum guidelines for feedlots; these may be exceeded by regional boards as required to meet the water quality standards. The guidelines require control of surface drainage from the ten-year 24-hour storm regardless of size. Feedlots must be protected from stream overflow in the 20-year storm for old operators and the 100-year storm for new operators. Surface drainage must be diverted from manure storage areas. Washwater and surface drainage must be directly applied to croplands or discharged to an approved treatment system. Lands that receive wastes must be managed to minimize erosion and runoff; dry manure should be incorporated as soon as possible. Odor problems in waste storage must be minimized. The guidelines also require the feedlot operator to minimize groundwater pollution. Special sealants for retention ponds are not required if the ponds are on sandy loam or finer soils. The fees for a waste discharge permit range up to $1,000 for the larger operations. A general animal waste program has been developed for the various types of feeding operations depending upon location. Dairies seem to have the most difficult and expensive tasks in meeting the WRCB guidelines. For example, in the Central Valley region, which contains some 550,000 dairy cows, the average investment cost of the control facilities is about $53.00 per cow.

ADDRESS: Water Resources Control Board
P. O. Box 100
Sacramento, California 95801
916/322-8353

2. SOLID WASTE

The Solid Waste Management Board (SWMB) is the agency responsible for implementing the state's solid waste management program (Government Code §66711). Counties must prepare solid waste management plans (GC 66780). Solid waste is defined to include manure (GC §66719). Again, cities, counties, and the Attorney General may abate any nuisance regardless of SWMB rules (GC §66732). Two members of the SWMB must be engineers, but no agricultural representative is specified. Counties must prepare plans consistent with the SWMB plan (GC §66780). SWMB regulations define agricultural solid wastes to include manure (Reg. 17225.3). All owners of disposal sites, including agricultural lands, must obtain written approval before they may utilize such land for disposal purposes (Reg. 17606). New disposal sites must obtain design approval (Reg. 17626). Recently adopted regulations provide recommendations rather than strict requirements for feedlot operation (Reg. 17801). The feedlot operator may propose the means of compliance rather than having the SWMB dictate the type of disposal system required (Reg. 17801). Compliance with the SWMB regulations does not relieve the feedlot operator from obtaining local permits or licenses. The feedlot operator must utilize a disposal process in conformity with the county solid waste management plan (Reg. 17804). All feedlots must be operated so as to minimize the occurrence of excessive vectors (insects), odors, and dust. Proximity to non-agricultural land uses is a factor in ascertaining the existence of a public health hazard (Reg.

17820). The presence of excessive vectors is prima facie evidence of the existence of a public health hazard. The operator must correct all health endangering conditions. Good waste management practices must be used. Retention ponds and lagoons must be so managed as to minimize excessive vectors or other public health endangering conditions (Reg. 17824).

ADDRESS: Solid Waste Management Board
Room 1335, Resources Building
1416 Ninth Street
Sacramento, California 95814
916/322-3330

3. AIR

The State Air Resources Board (ARB) shares the responsibility for implementing an air pollution control program with county and regional Air Pollution Control Districts (APCD's). "Air contaminant" is so defined as to include odors (Health & Safety §39013). There is a general prohibition against the emission of any air contaminant which may cause injury or annoyance to persons or property (H & S §41700). This prohibition is not applicable, however, to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals (H & S §41705). Every APCD is empowered to operate a permit system for all stationary sources of air contaminants (H & S §42300). An exemption from the permit requirement is made for equipment used in agricultural operations, in the growing of crops or in the raising of fowl or animals (H & S §42310). The Imperial County APCD has enacted a regulation requiring that all feedlots within 1-1/2 miles of an "urban limit" as delineated in the County General Plan obtain a "livestock feedyard certificate." The certificate is designed to require the operator to minimize the dust problem through a dust control plan which must contain procedures for maintaining the manure at a moisture factor between 20% and 40%. The ARB has brought two actions for injunctive and monetary relief against two feedlots in Imperial County. The odor problem is attacked by virtue of a general nuisance statute (Civil Code §3479) to circumvent the exceptions contained in the air pollution statute. A second complaint alleges violation of the general emissions prohibition because of the fugitive dust and particulate emissions. The Kern County APCD has recently been requiring feedlots of which feedmills are integral components to secure emission permits. The Kern County Regulations require permits both to construct and to operate any stationary source of an air contaminant. Plans and specifications must be submitted. The only agricultural exemption is for mobile equipment. Existing feedmills not attached to a feedlot have already been required to obtain permits. The usual emissions standard for particulate matter arising from feedmills is specifically held not to be applicable to agricultural operations necessary for the growing of crops, the raising of fowl or animals, or the use of other equipment in such activities. The APCD argues in an issued legal opinion that this exception should be interpreted narrowly and that there is no reason to distinguish between the off-site feedmill and an on-site feedmill. A similar argument is advanced for the visible emissions standard which is also otherwise not applicable to agricultural operations. The feedlot operators have argued that since the APCD still has a general nuisance provision which would be applicable, there is no need to require the on-site feedmills to incur the rather heavy financial burden of seeking permits.

ADDRESS: Air Resources Board
1102 Q Street
P. O. Box 2315
Sacramento, California 95812
916/322-6022

4. COMMERCIAL FEED AND FERTILIZER

The commercial feed law is enforced by the Department of Food and Agriculture (Agricultural Code §14902). There is a Feed Inspection Advisory Board which makes recommendations and regulations (AGR §14971). All feed manufacturers and distributors must be licensed (AGR §15051). Refeeding is allowed under a licensing operation (Reg. 2774.5). The composition of the end-product is carefully regulated as to moisture, chemical, microbiological and inorganic content. It may not be fed to dairy cattle, or to other animals within 15 days of slaughter (Reg. 2774.5). The manure may be sold if it meets the quality requirements. There are special categories and standards for dried poultry waste, dried poultry litter, dried ruminant waste and processed animal waste. Commercial fertilizers are also regulated by the Department of Food and Agriculture (AGR §14531). Fertilizer is so defined as not to include manure. Manure is defined as excreta that is not artificially mixed with any material except that which has been used for bedding (AGR §14507). All fertilizer dealers must be registered (AGR §14621).

ADDRESS: Department of Food and Agriculture
1220 N. Street
Sacramento, California 95814
916/322-5820

5. AGRICULTURE

Until January 1, 1978, all cattle feedlots having at least 500 head must be registered with the Department of Food and Agriculture (AGR §21081). The purpose of the registration is for brand and hide inspections (AGR §21083). The Department regulates the feeding of garbage to swine (AGR §10921) The feeding of household garbage to one's own swine is exempted from regulation (AGR §10501). All garbage must be boiled for 30 minutes prior to feeding (AGR §10951-2). All feeders must be licensed by the Department (AGR §10981). Dairy farms are also regulated by the Department (AGR §32701). It is unlawful to maintain an unsanitary dairy farm (AGR §33451). Plans and specifications for new dairies must be submitted to the Department for approval (AGR §33481). Building yards or enclosures must be kept clean and no part of the yards may be used to deposit manure which is allowed to decay (AGR §33514).

6. NUISANCE

The State Board of Health has general nuisance abatement powers (Health & Safety Code 203, 206). It has ancillary powers to abate any activities that will pollute waters utilized as a potable supply (H & SC §4457). Nuisance and public nuisance are very broadly defined (Civil Code §3479). As noted above, these general nuisance statutes have been utilized to seek abatement of alleged noisome conditions arising from feedlot operation. City and County Boards of Health also have nuisance abatement authority (H & SC §41509). Specific authority is given state and local boards to abate contamination or pollution of the waters (H & SC §5410).

7. SOIL AND WATER CONSERVATION

California recently changed the traditional soil and water conservation districts into Resource Conservation Districts (RCD) (Public Resources §9021). The Department of Conservation, Division of Resource Conservation and the State Resource Conservation Commission jointly oversee the conservation program (PR §9063, 9111). The RCD's may develop comprehensive soil and water conservation plans (PR §5413). They may also assist private land occupiers in order to achieve the local plan objectives (PR §9412). They do not have land use authority.

8. LAND USE

California is a leader in the field of planning and zoning. All zoning regulations, whether adopted by cities or counties, must be in strict accordance with a mandatory master or comprehensive plan (Government Code §65680, §65860). Every master plan must contain a land use element, an open space element, a conservation element, and a noise element among other requirements (GC §65302). Agricultural operations are specifically included within the open space element of the plan. The State Office of Planning and Research was ordered to inventory prime agricultural land for the purpose of inclusion within the open space plan (GC §65570). California also has a complex system of preferential tax assessment, tied into a system of reserving prime agricultural land for agricultural use (GC §51200, et. seq., Revenue and Taxation Code 400 et. seq.). Land which is held under an agreement to retain it in agricultural use may be assessed solely at its agricultural value subject to the agreed upon open space restrictions (R&T §421, 423).

9. FISH HATCHERIES

All nonprofit anadromous fish hatcheries must obtain permits from the Fish and Game Commissioner (Fish & Game Code §1170). All fish breeders must also be licensed (F&G §6452). The depositing in the water of any substance deleterious to fish, plant or bird life is prohibited (F&G §5650).

California was authorized to administer the National Pollutant Discharge Elimination System on May 14, 1973. The Water Resources Control Board is the administering agency.

COLORADO

Key to Legal Citation
Colo. Rev. Stat. §____
(§____)
(25-8-101)

1. WATER

The Colorado Water Quality Control Act (25-8-101 et. seq.) provides a comprehensive scheme for the regulation of discharges of pollutants into the waters of the state. The Department of Health (DOH), Water Quality Control Division (WQCD) is the agency responsible for implementing the state's water pollution control program. A Water Quality Control Commission (WQCC) adopts water pollution regulations (25-8-201). Concentrated animal feeding operations are defined to be point sources [25-8-103(10)]. Agricultural wastes are declared to be a pollutant [25-8-103(11)]. The WQCC also regulates sewage treatment works, but the statutes do not define sewage [25-8-103(15)]. All point sources must obtain permits from the WQCD (25-8-501). Special requirements are set out for discharges from sewage treatment works (25-8-501). Only feedlots with 1,000 slaughter or feeder cattle; 700 dairy cattle; 2,500 swine; 10,000 sheep; 55,000 turkeys; 100,000 chickens, with continuous overflow watering; 30,000 chickens, with liquid manure handling systems; or 5,000 ducks are required to obtain permits (25-8-502). No discharge is allowed which would violate any state, regional or local land use plan (25-8-503). The WQCC is directed to not require permits for animal wastes on farms and ranches, except as may be necessitated by federal acts or regulations (25-8-506). The feedlot regulations require all existing feedlots to be able to store all process wastewater from the 10-year, 24-hour storm. New facilities must be able to store wastewater resulting from the 25-year, 24-hour storm. The state discharge permit system regulations continue the statutory limitations on requiring permits for the small feedlot operator. Regulations also cover accidental spills or discharges which must be reported to the DOH. Finally, if there is a chance of groundwater pollution from lagoons or from land application of manure, the rules for subsurface disposal systems are activated and made applicable to the feedlot operator. The primary regulatory scheme is the requirement of a permit issued by the DOH.

ADDRESS: Department of Health
Water Quality Control Commission
4210 East 11th Street
Denver, Colorado 80220
303/388-6111

2. SOLID WASTES

Agricultural wastes are specifically exempted from the application of the Solid Waste Disposal Act (30-20-101).

3. AIR

The DOH, Air Pollution Control Division (APCD) is the state agency responsible for implementing the state's air pollution program (25-7-103). There is also an Air Pollution Control Commission (APCC) which is the rule making and permit issuing agency (25-7-105). The definition of air contaminant does not specifically include odors but is broad enough to encompass odor problems (25-7-103). The basic tool of the statutory program is the requirement of permits for new sources (25-7-112). According to the regulations, new sources, including feedlots, which have a fugitive dust problem must, in seeking a permit, explain methods taken to minimize the dust problem. Dust problems are usually handled on a citizen complaint basis. Regulations have been promulgated that deal with the odor pollution problem. The APCD uses the Barneby-Cheney scentometer to measure odor pollution. The dilution rate is set at 7 for residential and commercial areas and at 15 for all others. Agricultural sources are exempt, up to a dilution ratio of 127:1, if the best practicable treatment is being utilized to minimize emissions. Two odor measurements must be taken within one hour before enforcement is possible. Appropriate preventive and abatement measures must be taken by any individual whose activities could create unreasonable amounts of fugitive dust.

ADDRESS: Department of Health
Air Pollution Control Division
4210 East 11th Street
Denver, Colorado 80220
303/388-6111

4. COMMERCIAL FEED AND FERTILIZER

All commercial feed is regulated by the Department of Agriculture (35-60-103). All feeds must be registered with the Department (35-60-105). Under its regulatory authority (35-60-107) the Department has enacted regulations dealing with processed animal waste products (PAWP). No person may sell or distribute any PAWP prior to registration with the Department. All applicants must submit detailed descriptions of the processes used and samples of the final products. Quality standards have been established for three subcategories of PAWP: dried poultry waste, dried poultry litter and dried ruminant waste. These standards deal with permissible content of protein, crude fiber, ash, moisture, feathers and litter. PAWP must be properly labelled with its ingredients being correctly identified. PAWP may not contain any pathogenic organisms, drug or pesticide residues, or harmful parasites. All PAWP's must be thoroughly tested and proper records must be maintained. The Department regulates commercial fertilizers (35-12-103). However, unmanipulated animal manures, defined to be those not processed in any manner, are exempt from regulation (35-12-103). Manipulated manures must meet minimum reporting requirements as to chemical content (35-12-103). Soil conditioners, which can include manipulated manures, must be registered with the Department before sale (35-12-103).

5. DEPARTMENT OF AGRICULTURE

The Department of Agriculture requires that hog breeding facilities be free from collections of waste material (35-52-116). Public livestock markets must be licensed, and minimum square footage requirements for pens are mandated (35-55-101). All such markets must be maintained in a sanitary condition and be cleaned under the supervision of a veterinarian (35-55-109). The Department of Agriculture also includes the Colorado Beef and Colorado Sheep Boards, which are given the duty of promoting the agricultural production of beef and sheep (35-57-110, 35-57.5-102). Garbage may not be fed to hogs without pretreatment by boiling (35-52-113). All garbage feeders must obtain permits from the Department (35-52-114). The premises where hogs are fed must be free of collections of garbage and waste materials, as well as free of excessive rats and flies (35-52-116). All dairy barns must be kept in a sanitary manner (35-24-103).

ADDRESS: Department of Agriculture
406 State Services Building
1525 Sherman Street
Denver, Colorado 80203
303/892-3561

6. NUISANCE

The DOH has the authority to abate nuisances (25-1-108). It also has the authority to enforce minimum sanitary standards as to the quality of wastes discharged upon land and the quality of fertilizer derived from human wastes or sludge from sewage treatment plants (25-1-107). Pollution is classified as a Class 3 public nuisance (16-13-305). All local governments may prohibit nuisance type businesses within one mile beyond their boundaries. They may also require that sanitary standards be maintained in any stable or pigsty. Finally, they may regulate livery stables within their borders (31-15-501).

7. SOIL AND WATER CONSERVATION

There is a State Soil Conservation Board with mostly advisory powers (35-70-103). Local districts may be formed after local option elections (35-70-104). Districts may adopt land use ordinances after a local referendum on the issue (35-70-109). The land use ordinances are enforced by civil legal actions (35-70-114). There is also a soil erosion statute that allows counties to enact ordinances to deal with the problem (35-71-102).

8. LAND USE

Colorado has an extensive statewide land use program (24-65.1-101 et. seq.). Development may be restricted in certain areas or in matters of statewide concern (24-65.1-102). There is no direct reference to feedlots in the state regulatory scheme. Counties are authorized to zone and plan in the incorporated areas of the county (30-28-102). There is no exemption made for agricultural uses (30-28-111). Cities may zone and plan, including agricultural lands (31-23-301). Agricultural land uses, including feedlots, may be assessed at actual value, rather than at potential use value for purposes of determining the ad valorem property tax (39-1-103).

Colorado was granted NPDES authority on March 27, 1975. The authority is administered by the Department of Health.

CONNECTICUT

Key to Legal Citation
Conn. Gen. Stat. §____
(§____)
(25-54)

1. WATER

The Department of Environmental Protection (DEP), Water Compliance Unit is the agency responsible for implementing the state's water pollution control program (22a-2). There is, in addition, a Council on Environmental Quality (CEQ), a citizen body with mostly advisory powers (22a-11). Agricultural wastes are not defined in the statutes but would seem to fall under the general categories of "sewage" and "wastes" (25-54o). There are no particular regulations dealing with feedlot pollution, but if a discharge is involved a permit must be secured regardless of the size of the feedlot (25-54i). The DEP requires that treatment must be consistent with technical feasibility and takes into consideration the effect of the discharge on the quality of the receiving water. The Department of Health has jurisdiction over pollution of sources of drinking water in the state (25-32). The Department of Health may seek injunctive relief against the polluting source when it endangers a supply of drinking water or ice (25-51). Connecticut allows any person, including the attorney general, to seek declaratory or equitable relief from unreasonable pollution (22a-16). An informal cooperative agreement between the DEP, the Board of Agriculture, and the USDA (ASCS and SCS) attempts to deal with the cleaning up of feedlots after complaints have been heard. A second area of concern of this agreement is the correction of the more serious pollution sites. The usual remedy involves a state or federal cost-sharing agreement with the farmer who puts in a water pollution control system.

ADDRESS: Department of Environmental Protection
Water Compliance Unit
State Office Building
Hartford, Connecticut 06115
203/566-3654

2. SOLID WASTE

The DEP, Solid Waste Management Section is the agency responsible for implementing the state's solid waste management program (19-524a). Although solid waste is broadly defined in the statute, the entire thrust of the regulatory program is devoted to the municipal solid waste program, not to the agricultural waste situation (19-524e). The statutes and regulations do not exempt agricultural waste disposal from the permit system. The principal method of manure disposal is through land application, which is considered by the DEP to be merely the application of fertilizer not requiring any type of permit.

ADDRESS: Department of Environmental Protection
Solid Waste Management Section
State Office Building
Hartford, Connecticut 06115
203/566-5847

3. AIR

The DEP, Air Quality Division is the agency responsible for implementing the state's air pollution control program (19-507). Air pollution is broadly defined by statute, but odor is not specifically mentioned as an air pollutant (19-505). Odor is, however, included within the definition of an air pollutant in the regulations. Odor is not considered to be a serious problem at present. The basic regulatory scheme is that all new sources of air contaminants must obtain permits issued by the DEP (19-519a). Compliance with the statute and regulations is not a defense to a nuisance action. Agricultural activities are exempt from the fugitive dust regulations, but they must operate so as to minimize airborne dust. No person may allow the emission of objectionable odors beyond his property line. An odor may be declared to be objectionable only after the DEP has made an on-site inspection and has taken into consideration the nature, concentration, location and duration of the odor. The Mills adaptation of ASTM D-1341-52 with a maximum allowable level of 120 odor units per cubic foot may also be employed as a criterion of acceptable odor.

ADDRESS: Department of Environmental Protection
Air Quality Division
State Office Building
105 Capitol Avenue
Hartford, Connecticut 06115
203/566-3160

4. COMMERCIAL FEED AND FERTILIZER

All commercial feeds must be registered with the Board of Agriculture (22-118b). Feeds need be registered only if they are sold or supplied to another (22-118b). Fertilizers are also regulated by the Board (22-118b). Fertilizers are defined to exclude unmanipulated animal manure (22-111b). All commercial fertilizers must be registered (22-111c).

5. AGRICULTURE

The Board of Agriculture is authorized to reimburse farmers for one-half the cost of the completion of a farm waste management system provided that the reimbursement not exceed $3,500 (22-6c). The system must be certified by the Federal Agricultural Stabilization and Conservation Service (22-6c). The Department requires that all stables, buildings and premises where milk is handled must be kept in a clean and orderly manner (22-189). Cows must be kept clean and housed in suitable quarters. The water used must be free from pollution (22-189). All privies, sink drains and cesspools must be so located as not to be a menace to the milk products or to the public health (22-189). The Board also requires that all cattle and swine dealers be licensed (22-387). There is, however, an exception for those who both raise and sell cattle and for those who buy cattle and feed them, but dispose of them within 60 days of purchase (22-382). All swine growers must be registered as well (22-319). Garbage may be fed to swine only after boiling and after registration with the Board (22-320c). The Board is represented on the State Agricultural Waste Control Committee which considers methods and practices for animal waste pollution control.

ADDRESS: Board of Agriculture
State Office Building
Hartford, Connecticut 06115
203/566-4268

6. NUISANCE

Rubbish deposited in streams is specifically declared to be a nuisance and double damages may be recovered for injury caused in this manner (19-312). Allowing water to become filthy or polluted constitutes a nuisance (19-315). All towns, cities or boroughs have the authority to abate any public nuisance (7-148). Cities, towns or boroughs are also given the authority to define nuisance, within their limits, and to provide for the abatement of such nuisance at the expense of the owner [7-194(29)]. They may also regulate and prohibit the keeping of swine, cattle or poultry within the city limits as well as prevent the construction of poultry pens and houses. Cities may also regulate the removing of manure from the streets of the city (7-194).

7. SOIL AND WATER CONSERVATION

The Commissioner of the DEP has the authority to create local soil and water conservation districts (SCD's) (25-104a). There is no express authority for the exercise of land-use controls by SCD's (24-104a). The SCD's do have the power to develop erosion and sedimentation control programs as well as soil and water conservation plans.

8. LAND USE

There is a State Commissioner of Planning and Energy Policy whose duty it is to create and periodically revise a statewide plan (16a-27) dealing with both pollution and conservation. Regional planning agencies also may be created to make land-use plans (8-35). All cities, towns and boroughs have the power to zone and plan within their limits (8-2). There is no mention of agricultural uses. There are, in addition, strict land-use regulations applicable to the wetlands of the state (22a-30); their disturbance requires a permit issued by the DEP (22a-13). Connecticut has a preferential tax treatment assessment system for farmlands in order to preserve farmland and open space (12-107a-e). Livestock is exempted from the property tax (12-91).

Connecticut was granted NPDES authority on September 26, 1973. The authority is administered by the Department of Environmental Protection.

DELAWARE

Key to Legal Citation
Del. Code Title #, §____
(Title ____, §____)
(7-6002)

1. WATER

The Department of Natural Resources and Environmental Control (DNREC), Water Quality Section is the agency responsible for implementing the state's water pollution control program (7-6002). The basic regulatory system for water pollution is the requirement of a state permit for all activities that may contribute to the discharge of a pollutant to any ground or surface water (7-6003). Wastes from feedlots might fall under the definition of industrial wastes, liquid wastes, other wastes or sewage (7-6002). Agricultural wastes that are discharged into the waters of the state are specifically included in the definition of a pollutant (7-6002). The DNREC has promulgated regulations which, though not specifically applicable to the feedlot operator, do pose several requirements for him in his operation of animal waste storage and disposal facilities. Permits are required for all discharges of pollutants (Reg. 3.01), which are defined to include agricultural wastes (Reg. 2.23). In addition, all discharges of liquid wastes, which would also include agricultural wastes which would reach specified water bodies, must be treated (Reg. 7.01). The regulations also limit the land disposal techniques for liquid waste (Reg. 9.01). Spray irrigation of liquid wastes may be used only in areas of permanent vegetation (Reg. 9.01). The hydraulic application rate must be so selected as not to exceed the infiltration capacity of the soil (Reg. 9.07). Runoff and erosion must be controlled, and buffer zones for adjacent property must be considered (Reg. 9.06). Hydrologic and soil investigations must be carried out to determine suitability of land for the disposal of liquid waste (Reg. 9.10). The application of organic fertilizer to the land for agricultural purposes, where accomplished using recognized methods, is specifically exempted from the permitting requirement (Reg. 13.03). In addition, there is a statute making the placement or discharge of any foreign matter into a drinking water supply an offense subject to a fine of not less than $1,000 nor more than $5,000 per incident (16-1301). No state water may be polluted so as to injure or destroy any fish (7-1112). Any person who discharges a pollutant into the water must report it or be subject to fine (7-6028).

ADDRESS: Department of Natural Resources
and Environmental Control
Division of Environmental Control
Water Quality Section
Edward Tatnall Building
Dover, Delaware 19901
302/678-4761

2. SOLID WASTES

The DNREC, Solid Waste Management Section is the agency responsible for implementing the state's solid waste management program (7-6025). Except for the disposal of agricultural wastes on farms, all solid waste disposal operations must obtain permits from the DNREC (Reg. 3.06). Counties are given the responsibility for preparing county plans for collection, storage and disposal of all solid waste (16-1802). Solid waste is defined to specifically include agricultural waste (16-1801). There is also a Delaware Solid Waste Authority, which has plan-making responsibility for the statewide solid waste problem (7-6404).

ADDRESS: Department of Natural Resources
and Environmental Control
Division of Environmental Control
Solid Waste Management Section
Edward Tatnall Building
Dover, Delaware 19901
302/678-4781

3. AIR

The DNREC, Air Resources Section is the agency responsible for implementing the state's air pollution control program (7-6002). Air contaminants are defined to include fumes or vapor, but not odor (7-6002). All persons who may cause or contribute to the discharge of an air contaminant must obtain permits (7-6003). All persons who discharge an air contaminant and do not report it are subject to fine (7-6028). There are no fugitive dust or odor regulations applicable to the feedlot operator.

ADDRESS: Department of Natural Resources
and Environmental Control
Division of Environmental Control
Air Resources Section
Edward Tatnall Building
Dover, Delaware 19901
302/678-4791

4. COMMERCIAL FEED AND FERTILIZER

The Department of Agriculture requires that all commercial feeds that are sold, exchanged or distributed within the state be registered (3-1704). All commercial fertilizers also must be registered (3-2104). Fertilizers are so defined as to exclude unmanipulated animal manures (3-2103).

5. AGRICULTURE

Three counties, under the guidance of the Department of Agriculture, may appropriate $3,600 per year per county for the development, encouragement or improvement of agriculture (9-310). There are Advisory Councils on Poultry Promotion and Agriculture to aid both the Department and the Governor in making policy decisions relating to agriculture (29-8107, 8108). Garbage may not be fed to swine except by an individual farmer who feeds only his own household garbage to hogs raised solely for the use of that farmer (3-7108). However, the State Board of Health licenses all individuals who want to bring garbage into the state for the purpose of feeding it to swine or for any other purpose (16-1701). The Department does not directly regulate dairy farms.

6. NUISANCE

No person may dump garbage, refuse or offal without obtaining permission of the owner of the land (16-1704). The State Board of Health regulates the location and structure of all privy wells and other drainage systems (16-1501). No person may place any privy, hogpen or slaughterhouse so near a drinking water supply that the excrement or offal can, upon escape, run into any stream or running water (16-1302). Such acts are nuisances and may be abated immediately (16-1302). The State Board also licenses all poultry processing operations, including feeding stations and feeding rooms (16-3701). There is an exception for the slaughtering of poultry when it forms a part of a general farm operation (16-3702). The plant must be kept in a sanitary condition if the permit is to be renewed (16-3706). The State Board may investigate and abate any nuisance in the absence of a local board of health (16-126). Slaughterhouses within city limits may be declared to be nuisance by the local board of health (16-308). The placement of noisome matters in public places is a civil offense (16-309). Local boards of health may also abate any nuisance (16-310). They may order the removal of all hogpens if deemed necessary for protection of the public health (16-301).

7. SOIL AND WATER CONSERVATION DISTRICTS

The DNREC is the state agency that has advisory powers over the local soil and water conservation districts (29-8012). Local districts have only planning and survey powers (7-3908).

8. LAND USE

The state is involved in zoning and planning in the coastal zone area (7-7002) and the wetlands areas (7-6603). Neither state activity has dealt with feedlot operation. Both cities and counties have the authority to zone and plan (22-301). There is no mention of agricultural uses in the statutes. For general property tax purposes, land devoted to agricultural uses is to be assessed at its value for such use, not at its speculative value (30-8329). Livestock raising is considered to be an agricultural use (30-8330).

Delaware was granted NPDES authority on April 1, 1974. The authority is administered by the Department of Natural Resources and Environmental Control.

FLORIDA

Key to Legal Citation
Fla. Stat. §____
(§____)
(403.601)

1. WATER

The Department of Environmental Regulation (DER), Bureau of Water Quality Management is the agency responsible for implementing the state's water pollution control program (403.061). Agricultural wastes fall under the general definition of wastes (403.031). By virtue of its power to promulgate rules and regulations [403.061(7)], the Board has issued its permitting regulations (Chapter 17-4). Permitting authority is specifically granted to the DER over new sources of water pollution (403.087) that affect surface and/or groundwater (403.062). Engineering Memo FL-29 explains the permitting system for feedlot operations. If a feedlot produces less than 500 pounds of BOD_5 daily the DER requires that the design of its waste management system be prepared by the personnel of the USSCS and that the plans be submitted to the appropriate DER district office. Comments from local, county and special agencies are to be included in the draft proposal. No permit is required but the system is registered with the DER. The local pollution control agency may, at its discretion, have more stringent rules [403-182(2)]. For feedlots producing over 500 pounds BOD_5/day, a permit must be secured (403.087, Rule 1704.21). An engineering report, including a USGS topographical map, is required. Additional comments from local county pollution control departments are solicited, as are comments from state agencies involved in dairy products if appropriate. Upon approval of the plan, DER issues a construction permit and may require future water sampling or monitoring. The DER and the USSCS cooperate in setting minimum operational standards for feedlots.

ADDRESS: Department of Environmental Regulation
Bureau of Water Quality Management
2562 Executive Center Circle, East
Tallahassee, Florida 32301
904/488-6221

2. SOLID WASTES

The DER, Solid Waste Management Program is the state agency responsible for implementing the state's solid waste program (403.704). There are no specific regulations designed to control wastes from feedlot operations. The state is authorized to create a statewide resource recovery and management plan (403.705). Included within this plan must be a permit system for the disposal of solid wastes. However, "normal farming operations" are exempted from the definition of resource recovery and management facility (Reg. 17-7.03). By administrative interpretation, feedlots are not considered to be "normal farming operations." The other exemption from the permitting requirement for solid waste disposal operations is the disposal of such waste on one's own property (Rule 17-7.03). This would seem to cover the usual method of disposal of wastes from the feedlot operation. No solid waste, not covered by the two exemptions, may be disposed of except by permit (Rule 17-7.04). If a permit be required, the DER imposes performance standards so as to minimize air, water and land pollution (Rule 17-7.05). The DER regulations disapprove of the disposal of solid wastes in a variety of contexts, mostly dealing with potential surface and groundwater pollution (Rule 17-7.04). In addition, local governmental approval is required in many cases (403.708) These prohibitions would apply to any individual disposing of solid wastes.

ADDRESS: Department of Environmental Regulation
Solid Waste Management Program
2562 Executive Center Circle, East
Tallahassee, Florida 32301
904/487-1150

3. AIR

The DER, Air Quality Management Program is the agency responsible for implementing the state's air pollution control program (403.031-2). Odors are not specifically included within the statutory definition of a "contaminant," but the definition is clearly broad enough to include them (403.031). The regulations define odors and objectionable odors utilizing a nuisance-type approach. No person may discharge emissions which contribute to an objectionable odor.

ADDRESS: Department of Environmental Regulation
Air Quality Management Program
2562 Executive Center Circle, East
Tallahassee, Florida 32301
904/487-1855

4. COMMERCIAL FEED AND FERTILIZER

Commercial feed distribution and sale is regulated by the Department of Agriculture and Consumer Services (580.21) All feeds, except those mixed for the consumer's own use, must be registered (580.041). The Department may promulgate regulations regarding the sale and distribution of any commercial feed (580.101). The Department also regulates the sale and distribution of commercial fertilizers (576.011). All fertilizers must be registered with the Department (576.021). The Department has not enacted any regulations on feed or fertilizer that would have an impact on the feedlot operator.

5. AGRICULTURE

The Department of Agriculture and Consumer Services is empowered to regulate agricultural activities with a specific exemption for matters that affect the public health and which are regulated by another state agency (570.07). No general feedlot regulations have been promulgated. The Department cooperates with the USSCS in getting cost-sharing monies for animal waste storage and diversion facilities. All individuals who feed garbage to swine must obtain permits from the Department unless the swine are to remain on the farm (585.50-.51). The permitted feeder must maintain his premises in a sanitary condition (585.52).

ADDRESS: Department of Agriculture
and Consumer Services
Collins Building
Tallahassee, Florida 32304
904/488-3022

6. NUISANCE

The Department of Health, Division of Public Health and local public health agencies have the authority to regulate public health nuisance and sanitary practices relating to the disposal of excreta (381.031). The Division has no present regulatory scheme directly affecting feedlot disposal problems. Clearly, the Division of Public Health has the ability on a case-by-case basis to abate nuisance-type conditions caused by unsanitary feedlot operations (386.01-.02). Included within the statutory definition of nuisance injurious to health are odors or fly breeding conditions (386.401). A judicial decision of an intermediate Florida appellate court enjoined a hog farm operating in an area zoned by a county for agricultural use from operating with more than 1,000 head of hogs because of the nuisance-type conditions [MERCER v. BROWN 190 So. 2d 610 (1966)].

7. SOIL AND WATER CONSERVATION

The State Soil and Water Conservation Council is primarily an advisory body (582.06). Local districts may formulate land use regulations affecting agricultural operations including the construction of ponds, ditches and dikes (582.22).

8. LAND USE

Both cities and counties have zoning authority in Florida (163.160, 166.011). No exception is made for agricultural uses. The state has an active role in land use controls; it deals primarily with large-scale developments, or within areas of critical environmental concern (380.01 et. seq.). However, agricultural activities are excluded from the statutory definition of development which triggers state and local control. Agricultural lands may be given preferential property tax treatment (193.461). An assessment may be based solely on use value (Art. 7, §4).

The Florida program has not been approved for the National Pollutant Discharge Elimination System.

GEORGIA

Key to Legal Citation
Ga. Code §____
(§____)
(17-501)

1. WATER

The Department of Natural Resources (DNR), Environmental Protection Division (EPD) is the agency responsible for implementing the state's water pollution control program (40-3514, 5; 17-505). All discharges of sewage or other wastes must comply with the rules and regulations and permit requirements of the EPD (17-510). Any person operating a treatment works from which a discharge could possibly occur shall apply for a permit although no permit is required (Reg. 391.3.6-.02). Every feedlot not under the NPDES system would be required to seek a permit and have its plans and specifications approved for any construction of a sewage system (Reg. 391.3.6-.02). The EPD will waive the submission and approval of plans if the feedlot operator utilizes any one of the USSCS-approved techniques for on-site disposal. Large scale operations which do not discharge must submit their plans and specifications although they are not required to have permits. The USSCS submits an annual report listing all operations it has approved. County cooperation is also engendered in the USSCS process according to the DNR. The primary waste management system utilized by feedlot operators in the state is based on the use of lagoons. Some operations use anaerobic ponds with a spraying system.

ADDRESS: Department of Natural Resources
Environmental Protection Division
270 Washington Street, S.W.
Atlanta, Georgia 30334
404/656-6593

2. SOLID WASTE

The DNR, EPD is the agency responsible for implementing the state's solid waste management program (43-1602). Solid waste is so defined as to specifically include animal manures (43-1603). There is, however, a specific exemption for small feedlot operations; by definition these have capacities of less than 1,000 cattle or 5,000 swine (43-1608). Further exemptions are made for large feedlots which can show that their waste disposal system will contain a ten-year storm (43-1608). The use of animal manures for fertilizer is exempted from the permit requirements (43-1608). The policy of the Solid Waste Management Branch of EPD has been to enforce the broad rules and regulations on solid waste disposal solely on a case-by-case basis in the nuisance-type situation where the feedlot operator attempts an off-site disposal of the solid wastes (Reg. 391-3-4-.04) Transportation of wastes is regulated by the DNR if public roads are used (Reg. 391-3-4-.06). Permitting requirements are deferred to the water quality section. Counties and cities may also regulate the disposal of solid wastes (43-1603).

ADDRESS: Department of Natural Resources
Environmental Protection Division
270 Washington Street, S.W.
Atlanta, Georgia 30334
404/656-2833

3. AIR

The DNR, EPD is also the agency responsible for implementing the state's air pollution control program (88-903, 40-3515). Odor is not listed as an air contaminant, but the definition of air pollution is broad enough to include it (88-902). The DNR is authorized to promulgate rules and regulations and to issue permits (88-903). In exercising authority under this section, the DNR must consider the economic effect of the regulation as well as the amount of interference with the enjoyment of life (88-906). There are no regulations dealing with fugitive dust or odor problems.

ADDRESS: Department of Natural Resources
Environmental Protection Division
270 Washington Street, S.W.
Atlanta, Georgia 30334
404/656-4998

4. COMMERCIAL FEED AND FERTILIZER

All commercial feeds must be registered with the Commissioner of Agriculture before distribution (42-203). The registration requirement does not apply to an individual who produces or manufactures feed for the purpose of feeding his own livestock or poultry (42-212). The Commissioner has allowed, to a limited degree, the refeeding of dried poultry waste to livestock. The Commissioner also regulates the sale and distribution of commercial fertilizer (5-107). Commercial fertilizers are so defined as to exclude unmanipulated animal manures (5-1003). All commercial fertilizers must be registered with the Commissioner (5-1004).

5. AGRICULTURE

The Commissioner of Agriculture is empowered to regulate the sanitary requirements of dairy farms including the construction, drainage and sanitary surroundings of the milking barn and other premises [42-601(d)]. He is also empowered to issue operating permits or licenses (42-610). No regulations have been promulgated (42-609). Persons who feed garbage to swine must be licensed by the Commissioner (62-1703). This requirement is not applicable to farmers who feed their own garbage to their own animals (62-1702.1).

ADDRESS: Department of Agriculture
Agriculture Building
Capitol Square
Atlanta, Georgia 30334
404/656-3600

6. NUISANCE

The Department of Human Resources and county Boards of Health are empowered to exercise responsibility in matters pertaining to health not already exercised by another agency (88-204; 88-108). This would include nuisance abatement authority. Nuisances are broadly defined by statute (72-101). In one reported case, the adjacent landowner charged that a defendant farmer was operating a nuisance in the form of chicken houses. The court found insufficient allegations in the complaint to sustain a finding of a nuisance.

7. SOIL AND WATER CONSERVATION

There is a State Soil and Water Conservation Committee with advisory powers (5-1901). Local soil and conservation districts are organized through the State Committee (5-1901). Local districts may adopt land use regulations after a referendum of voters in the district (5-2101-2). Once adopted, these regulations become obligatory for landowners (5-2108). Georgia also has an Erosion and Sedimentation Act for land disturbing activities (5-2301a et. seq.). Agricultural operations, including the raising of livestock, are exempted from the operation of this law (5-2303a).

8. ZONING

Cities are authorized to adopt zoning ordinances which may regulate agricultural uses (69-801). Under the 1976 Proposed Constitution, counties would have authority to regulate air pollution and to enact zoning regulations (2-6102). There are no statutes allowing preferential tax treatment for agricultural land.

Georgia received NPDES authority on June 28, 1974. The authority is administered by the Department of Natural Resources, Environmental Protection Division.

HAWAII

Key to Legal Citation
Hawaii Rev. Stat. §____
(§____)
(342-2)

1. WATER

The Department of Health (DOH) is the agency primarily responsible for implementing the state's water pollution control program (342-2). In addition, there is an Environmental Council and a Director of Environmental Quality Control who operate directly out of the Governor's office (341-3). Agricultural wastes are specifically included within the statutory definition of wastes (342-1). There is a general prohibition against the disposal of waste or the discharge of a pollutant without an NPDES permit or approval of the DOH. The DOH requires permits for feedlot operators only if they fall under the EPA guidelines. County officials may also enforce the water pollution regulations (342-17).

ADDRESS: Department of Health
Environmental Health Division
P. O. Box 3378
Honolulu, Hawaii 96801

2. SOLID WASTE

The DOH is the agency responsible for implementing the state's solid waste management program (342-52). Agricultural wastes are not specifically mentioned in the statute but would appear to fall under the definition of solid waste (342-51). Wastes from slaughterhouses and poultry processing plants are defined to be hazardous wastes (342-51). The DOH is specifically encouraged to promote recycling of animal wastes for agricultural purposes (342-54). Any individual who operates a solid waste management facility must obtain a permit from the DOH. A farmer who disposes of the solid wastes from his operation on his own property is exempted from this requirement.

All permittees must meet strict performance standards in the operation of a disposal facility. Special permits are required for the disposal of hazardous solid waste.

ADDRESS: Department of Health
Environmental Health Division
P. O. Box 3378
Honolulu, Hawaii 96801

3. AIR

The DOH is also the agency responsible for implementing the state's air pollution control program (342-22). Air pollution is defined to include both odors and dust (342-21). Odors are defined by regulation to include smells which are "unpleasant to persons," which "interfere with sleep," or are otherwise detrimental to health. Any new source of air pollution must obtain a permit prior to construction and operation. The fugitive dust regulation requires the farmer to take reasonable precautions in his operation so as to minimize airborne dust. It is unlawful to cause the discharge of fugitive dust beyond one's property line. There are no specific odor regulations.

ADDRESS: Department of Health
Environmental Health Division
P. O. Box 3378
Honolulu, Hawaii 96801

4. COMMERCIAL FEED AND FERTILIZER

The Department of Agriculture is given the responsibility for enforcing the commercial feed laws (144-2). All commercial feeds must be registered with the Department (144-4). There are no laws dealing with the regulation of commercial fertilizers.

5. AGRICULTURE

The Department of Agriculture may adopt rules for the inspection and quarantine of any animals located within the state (142-2). It also licenses all persons engaged in the growing or production of any farm product (145-1). This would include all poultry and livestock producers, excluding dairymen (145-1). The Department also regulates the poultry and poultry product industry (161-3). All poultry houses must be maintained in a sanitary condition and a license must be obtained before a poultry house may be operated (161-11). The DOH requires, by regulation, that all garbage must be boiled for 30 minutes before it may be fed to swine.

6. NUISANCE

The DOH also has general nuisance and sanitation regulatory powers. The

DOH and county health departments have the affirmative duty to enforce all DOH regulations; this includes the power to regulate nuisance, adulterated feed, pig and duck ranches, and any place where a noxious business may take place (321-11). The DOH is given specific authority to remove all nuisance (322-1). The DOH may require unsanitary conditions on the land to be remedied by drainage or other means (322-21). Counties have licensing authority to regulate the location of any building in which a noisome trade is conducted (322-42). This is under the aegis of the county board of health (322-42). All licensees must maintain the premises in a sanitary condition (322-42). The DOH has enacted regulations dealing with livestock and poultry raising operations. The regulations require that all manure be promptly removed (within 24 hours) in order to avoid fly and rodent infestation and odor problems. Manure may be placed in licensed sanitary landfills. The regulations also deal with the construction, location and maintenance of feedlot operations, including a general requirement that the enclosures must be kept free from accumulations of excreta. Floors must be impervious to moisture so that they can be properly flushed with water.

7. SOIL AND WATER CONSERVATION

The Department of Land and Natural Resources (DLNR) acts as the statewide soil and water conservation commission (180-2). Local soil conservation districts do not have land use powers (180-13). Counties and local soil conservation districts are required to enact ordinances and promulgate regulations to control soil erosion and sediment loss from all but the most minor land disturbing activities (180C-1). The DOH and the DLNR may enact regulations if the counties and local districts do not act promptly (180C-4).

8. LAND USE CONTROLS

The DLNR regulates the use of state-owned land within Hawaii which has large sections of such land (171-1). The DLNR may classify the use of such state-owned land including the use of land for special livestock or pasture use (171-10). When the state leases this land for private use the lease may contain agricultural use restrictions (171-37). Hawaii was the first state to have state regulation of land use. The program is operated through a State Land Use Commission (SLUC) (205-1). Among the classifications enumerated in the program is an agricultural district which is specifically singled out for protection against urban expansion (205-2). Counties have the authority to adopt zoning ordinances that are compatible with the use districts created by the SLUC (205-5). Counties may regulate agricultural activities (46-4). The SLUC regulations allow the raising of livestock, including poultry and fish, in the agricultural area districts. Assessments for ad valorem taxes usually reflect the zoning district in which the land is placed. Dedication of land to agricultural uses is also allowed with a concomitant lower use value assessment.

Hawaii was granted NPDES authority on November 28, 1974. The authority is administered by the Department of Health, Environmental Health Division.

IDAHO

Key to Legal Citation
Idaho Code §____
(§____)
(39-104)

1. WATER

The Department of Health and Welfare (DHW), Division of Environment (DOE), is the agency responsible for implementing the state's water pollution control program (39-104). The statute defines water pollution in broad and general language, not distinguishing between sewage and other waste water (39-103). Under DHW regulations, however, agricultural wastes would fall under both the sewage and the waste water definitions. The DHW may require permits for any source of water pollution (39-115). Waste treatment and discharge permit regulations adopted by the DHW in January 1977 were declared null and void by an act of the 1977 Idaho Legislature. As a result, the DHW relies on the US EPA to implement the permit program. There still remains a general regulation prohibiting the storing, disposing or accumulating of manure so as to cause, or be likely to cause, water pollution. Water that is used for the manufacture of ice must be free from all filth, offal and contact with animal matter (37-2101).

ADDRESS: Department of Health and Welfare
Division of Environment
Water Pollution Control Section
State House
Boise, Idaho 83720
208/384-2390

2. SOLID WASTE

The DHW, DOE is the agency responsible for implementing the state's solid waste management program (39-105). Solid waste is so defined as to specifically include wastes from agricultural operations (39-103). The DHW is authorized to enforce minimum sanitary standards for the storage and collection of solid wastes (39-105). Plans, maps, specifications and a proposed operation report must be submitted for any solid waste disposal site. The DHW regulations require that all solid wastes be managed so as to minimize vectors; prevent air, water and noise pollution; and prevent excessive abuse of the land. The regulations require DHW approval of site location and operational procedures. All solid waste must be so stored as to minimize odors, flies and rodents. While the regulations do not exempt agricultural operations, it has been the policy of the DHW to delegate control responsibility of agricultural waste disposal to its Water Pollution Control Section. Most farmers store manure over the winter months and apply it in the spring in one or two heavy applications. No application rate limits are prescribed by the DHW.

ADDRESS: Department of Health and Welfare
Division of Environment
Solid Waste Management Section
State House
Boise, Idaho 83720
203/384-2287

3. AIR

The DHW is also the agency responsible for implementing the state's air pollution control program (39-105). Air contaminants are defined to include dust, fumes, vapors and other gaseous fluids, but there is no mention of odors (39-103). The DHW regulations, however, include odor as an air contaminant. Odor problems have arisen because of the winter storage of manure by farmers. The regulations require that odor emissions be minimized so as to not cause air pollution. In practice, the DHW has handled odor complaints on a case-by-case basis, while encouraging local governments to zone and plan effectively to avoid the problem. All operators of feedlots and other facilities must utilize reasonable precautions to avoid emissions of fugitive dust.

ADDRESS: Department of Health and Welfare
Environmental Protection Division
State House
Boise, Idaho 83720
208/384-2906

4. COMMERCIAL FEED AND FERTILIZER

All commercial feeds which are distributed or sold must be registered with the Department of Agriculture (25-2718). Commercial fertilizers are defined to include manipulated manures but not unmanipulated manures (22-603). All fertilizers must be registered before being distributed (22-605). There is a separate labeling-only requirement for soil conditioners (22-4003). All products registered under the fertilizer law are excluded from the definition of soil conditioners (22-4003).

5. AGRICULTURE

The Department of Agriculture enforces the statutory prohibition against the feeding of garbage to swine (25-234). Swine that have been fed garbage may not be sold. Farm produce dealers must be licensed, with farm products being so defined as to exclude livestock but to include poultry and poultry products (22-1301). Fur farms are deemed to be agricultural pursuits and may be inspected for cleanliness (25-3005). There is a beef council, which has as its primary purpose the promotion of the beef industry. It may also engage in certain scientific studies dealing with the livestock industry (25-2901). No sheep herder may graze his herd on land previously occupied by cattle (25-1907). Livestock owners have no duty to keep their stock off public highways (25-2118).

ADDRESS: Department of Agriculture
4696 Overland Road
Boise, Idaho 83720
208/384-3240

6. NUISANCE

Public nuisance is broadly defined by statute and includes the obstruction of free passage or use of any water body (18-5901). Any individual who maintains or commits a public nuisance is guilty of a misdemeanor (18-5903). It is also a misdemeanor to dump any material inside a posted area that surrounds a water body that is used primarily for domestic drinking water purposes (18-7013). Nuisance includes anything which is injurious to health or offensive to the senses (52-101). Nuisance may be abated by either a private or public legal action (52-302-3). District boards of health have the authority to preserve and protect the public health (39-414). Their powers of nuisance abatement include the eliminating of the source of filth or health hazard (39-420). Cities may also establish boards of health to operate within the city and up to five miles outside the city boundaries (50-304). Cities may define nuisance and abate it within an area extending three miles beyond the municipal boundaries (5-334).

7. SOIL CONSERVATION DISTRICTS

The State Soil Conservation Commission has largely advisory powers (22-2718). Local Soil Conservation Districts may require that appropriate corrective methods be used to conserve soil resources (22-2716). Local districts do not possess land use authority.

8. PLANNING AND ZONING

Both cities and counties have the authority to zone and plan (67-6503). The activities are designed to promote prevention of air and water pollution, and to encourage the protection of prime agricultural land (67-6502). There is, however, an exclusion that prevents the county commissioners from adopting any ordinance which may deprive an owner of full and complete use of agricultural land (67-6529). This restriction would not apply to cities; on the other hand, agricultural lands in cities may be disincorporated by petition if the land is used exclusively for agricultural purposes (50-226). Facilities used to attain air and water quality requirements are exempt from ad valorem taxation (63-1055).

The Idaho program has not been approved for the National Pollutant Discharge Elimination System.

ILLINOIS

Key to Legal Citation
Ill. Rev. Stat. (Ch.____, §____)
(Ch____-§____)
(111 1/2-1004)

1. WATER

The Illinois administrative machinery for implementing the water pollution program is very complex. There is first the Illinois Environmental Protection Agency (IEPA) which is charged with the duty of collecting and disseminating all pollution control information and of monitoring and ascertaining the quantity, quality and nature of all discharges from any contaminant source (air, water and land) (111 1/2-1004). It also administers the permit system and reviews all plans and specifications for construction (111 1/2-1004). The Pollution Control Board (PCB) has two primary functions: rule making, and enforcement (111 1/2-1005). Before it may exercise any rule-making authority, however, the third branch of the environmental organization must prepare a complete economic impact analysis of the proposed rules (111 1/2-1006). This organization is called the Institute for Environmental Quality (IEQ). Initial enforcement actions are brought to the PCB for both monetary penalties and injunctive relief (111 1/2-1005). The Office of the Attorney General is primarily responsible for bringing these actions before the PCB or before a trial court (14-12). The PCB has promulgated a series of Livestock Waste Regulations, presently applicable. The regulations are geared to the US EPA regulations as to minimum numbers of animal units required before a permit must be sought (Reg. 202). A smaller animal confinement facility must seek a permit if it is causing or threatening to cause a violation of the Illinois Environmental Protection Act or of PCB regulations (Reg. 203). All open feedlots must control surface water runoff so as to prevent water pollution. No new livestock facility may be opened if a stream or other surface water body is located within its boundaries. In addition, any facility located within the 10-year flood plain zone shall be protected against such flood. All new livestock facilities must be located and managed so as not to cause odor or air pollution problems (Reg. 104). All waste stored for a period in excess of six months must be contained in a manure storage structure that meets IEPA guidelines (Reg. 104). All feedlot facilities must have adequate systems to prevent excessive outside surface runoff waters from flowing through a feedlot (Reg. 104). A holding pond capable of storing a volume equal to the area of the feedlot plus any other contributing area multiplied by 12 inches for runoff from earthen areas and 15 inches for runoff from concrete areas must be provided (Reg. 104). The quantity of livestock waste applied on soils shall not exceed a practical limit as determined by soil type, condition, slope, and other relevant considerations (Reg. 104). A separate PCB document which provides guidelines for land application rates will be discussed in the solid waste segment. The PCB is considering changes in the present regulations to reflect primarily the lower number of animal units required by the US EPA for the NPDES permit. The 300-1,000 animal unit facility will now require a permit. The 300-unit or smaller facility will be required to obtain a permit only if either of two conditions occur:

pollutants are discharged into navigable water through a ditch, or pollutants are discharged directly into navigable waters which come into direct contact with the animals confined in the operation. For any small operation the agency may, on a case-by-case basis, require a permit after considering the following factors: 1) size of the operation and amount of wastes reaching the waters; 2) location of the feeding operation relative to the water body; 3) means of conveyance of the animal waste and processed wastewater to the water body; and 4) the slope, vegetative cover and other factors relative to the likelihood and frequency of discharge of the polluted water. No permit may be required for the small operator without an on-site inspection by a member of the IEPA. Illinois also requires that the cost of removing water pollutants placed into navigable waters shall be borne by the discharger (85-1704). Certain river conservancy districts also have the legal obligation to prevent pollution of any waters within said district, although their jurisdiction does not supersede that of the PCB (42-403, 409).

ADDRESS: Illinois Environmental Protection Agency
Division of Water Pollution Control
2200 Chruchill Road
Springfield, Illinois 62706
217/782-5545

2. SOLID WASTE

The land pollution or solid waste problem is handled by the same organizations as is the water pollution control program. The PCB has issued a Technical Policy Document entitled "Design Criteria for Field Application of Livestock Waste." The general policy is that the livestock waste application must not exceed the agronomic nitrogen rate, which is defined to be the annual application rate of nitrogen that can be expected to be required for a reasonably anticipated crop yield. The document notes that if the application is set at that rate, there is likely to be an oversupply or overabundance of phosphorus. It is suggested that individual operators perform actual chemical analyses on particular soils before they begin to apply manure. The approximate nutrient contents of waste from different animals and different management systems are listed, as are approximate quantities of total manure, nitrogen, phosphorus and potassium excreted by different livestock species. Other recommendations are that: surface application should be used only when the land slope is no greater than 5% or where the yearly average soil loss is less than 5 tons/acre; injection or surface application with immediate incorporation should be used when the land slope is greater than 5%; and livestock waste should not be applied within 200 feet of surface water unless the water is upgrade or there is adequate diking. In any case, there should be a vegetative strip between the application area and any surface water. Waste should not be applied within 150 feet of any water well. Conservative loading rates should be used in the case of a high water table. Livestock waste should not be applied on a 10-year flood plain unless the injection or incorporation method of application is used. Waste applications on frozen or snow-covered land should be avoided. If waste must be spread on frozen land, the slope must be less than 5% or adequate erosion control practices must be used. Waste should not be applied during a rainfall. The odor control problem from the storage of wastes or from its application is recognized. It is suggested that soil injection or incorporation, as well as a judicious selection of application areas can significantly reduce the amount of odors. Agronomic fertilization rates for various Illinois crops are listed.

ADDRESS: Illinois Environmental Protection Agency
Division of Land Pollution Control
2200 Churchill Road
Springfield, Illinois 62706
217/782-6760

3. AIR

The PCB, IEPA, and IEQ are also responsible for the air pollution control program (111 1/2-1004). The definitions of air pollution and air contaminants include odors (111 1/2-1003). As seen earlier, the IEPA recognizes air pollution in terms of both dust and odor as a feedlot problem. The IEPA, which handles these problems on a case-by-case citizen complaint basis, has brought two suits to enjoin and seek penalties from poultry operations which were causing odor problems. Odor regulations, applicable only to rendering operations, have been promulgated which utilize the "Mills" test on a scentometer. Illinois regulations forbid the emission of fugitive particulate matter that is visible to an observer looking generally toward the zenith at a point beyond the property line of the emission source.

ADDRESS: Illinois Environmental Protection Agency
Division of Air Pollution Control
2200 Churchill Road
Springfield, Illinois 62706
217/782-3397

4. COMMERCIAL FEED AND FERTILIZER

Commercial feed use is regulated by the Department of Agriculture (56 1/2-66.2). The definition of feed would not exclude manure (56 1/2-66.3). All feeds must be registered and properly labeled (56 1/2-66.4). Fertilizers also must be registered with the Department of Agriculture (5-55.4), but natural and unprocessed animal manure is excluded from the definition of commercial fertilizer (5-5513).

5. AGRICULTURE

The Department has general duties with respect to the livestock industry including its promotion (127-40.7), and the development of improved methods of production (127-40.8). It also must see that livestock in stockyards are housed, fed and properly cared for (127-40.16). The Department also supervises poultry houses, including their sanitation (8-131). All dairy cow yards must be graded, drained and kept clean (56 1/2-194). All manure must be removed and stored in such a manner as to best prevent the breeding of flies or other vectors (56 1/2-195). Garbage may not be fed to swine, except if done by the individual who has produced the garbage (8-212).

6. NUISANCE

Public nuisance is defined to include the depositing of any offal in any watercourse or on land (100 1/2-26). All municipalities have the authority to define, prevent and abate nuisance (11-60-2). There is no express county authority to abate nuisance, but counties may regulate air contamination which would include odors (34-421.2).

7. SOIL AND WATER CONSERVATION DISTRICTS

There is a State Soil and Water Conservation District Advisory Board, made up of agricultural members, which oversees the local soil conservation districts. The SCD's have the authority to enact land-use regulations but only after they are empowered to do so by a direct referendum (5-128).

8. LAND USE

Cities have the power to zone and plan (24-11-13-1). There is no exception for agricultural uses. Counties also have the power to zone and restrict the location and use of structures (34-3151). There are, however, some special considerations for agricultural uses. If agricultural users are required to obtain permits, they may not be charged for them (34-3151). The regulations may not be exercised so as to impose restrictions on land, buildings or other structures used for agricultural purposes except as to set-back lines (34-3151). Townships may also zone where counties have not elected to do so but they may not impose regulations or require permits with respect to agricultural uses (139-307). Agricultural land which has been devoted to that use for at least three years is to be assessed at 33 1/3% of market value as a farm (120-501a-1). All other property is assessed at 33 1/3% of full market value (120-501).

Illinois was authorized to administer the National Discharge Elimination System on October 23, 1977. The IEPA is the administering agency.

INDIANA

Key to Legal Citation
Ind. Code §____
(§____)
(13-7-1-1)

1. WATER

Indiana has a very complex environmental protection program. There is an overriding policy of providing for comprehensive environmental control on a statewide basis (13-7-1-1). There is a state umbrella-type organization called the Environmental Management Board (EMB) (13-7-2-1). The State Board of Health provides the staff for the EMB. The EMB has general rule-making authority (13-7-3-1). However, the Stream Pollution Control Board (SPCB) is deemed to be the water pollution control agency for the state (13-7-2-10) The SPCB is specifically directed to continue its role unaffected by the powers and duties of the EMB (13-7-2-9). Water pollution is broadly defined to include any alteration of the properties of the waters (13-7-1-2). There is a prohibition against the discharge of any contaminant which might cause pollution (13-7-4-1). The SPCB has enacted regulations which prohibit the discharge of pollutants, including agricultural wastes, into any waters of the state (Reg. 13-7-10-1). The SPCB is given specific authority to control and prevent pollution of the waters of the state (13-1-3-4). The SPCB is also given authority to protect agricultural and livestock users of water from the pollution of their water supply (13-1-3-7). The SPCB is the state water pollution control agency for purposes of meeting the NPDES requirements (13-1-4-1). The SPCB is also authorized to regulate confined animal feeding operations (13-1-5.7-1). These are defined to include cattle lots where more than 300 head are fed, swine lots where more than 600 head are fed and poultry operations involving 30,000 head or more (13-1-5.7-1). All operations that discharge are also regulated by the SPCB (13-1-5.7-1). The regulations require only those confined feeding animal operations that fall within the above numerical limits to apply for state construction, operation and discharge permits. No construction of a confined feeding operation may be begun without a permit from the SPCB. Every pre-existing operation was required to submit an application and descriptive information within two years of the passage of the act, which was in 1971 (13-1-5.7-2). All operators must submit their plans and specifications for the waste treatment and control facilities with a detailed soil and topographic study when they seek the SPCB permit (13-1-5.7-3). The SPCB is authorized to disallow continued operation of feedlots where they continue to discharge into waters (13-1-5.7-4). Any person violating the confined animal feeding act is guilty of a misdemeanor carrying a maximum fine of $100 (13-1-5.7-7). Individuals and corporations which are ordered to treat, dispose of, or cease discharges of industrial and sanitary wastes are given the authority to condemn land for purposes of compliance with the order (13-1-5-1). Unfortunately, there is no definition of sanitary wastes which would indicate whether or not a feedlot operator could fall under the section. The SPCB has also enacted water quality criteria to create minimum conditions of being free from noisome substances. All waters must be kept free of discharges that: (1) will settle to form objectionable deposits; (2) will be unsightly, produce color, odor or other condition so as to create a nuisance; (3) will be toxic to human, animal, plant or aquatic life; and (4) will cause algae to grow (Reg. 13-1-3-7-1). The Department of Natural Resources also has the power to investigate pollution of waters running through state lands (14-3-1-14).

ADDRESS: Indiana Stream Pollution Control Board
1330 W. Michigan Street
Indianapolis, Indiana 46206
317/633-4941

2. SOLID WASTE

The EMB and the State Board of Health (SBH) are primarily responsible for implementing the state's solid waste disposal program (13-7-4-1). No contaminants which would create a pollution hazard may be deposited on land (13-7-4-1). All individuals who engage in disposal activities must be licensed by the EMB (13-7-10-1). There are apparently no regulations dealing specifically with the problem of land disposal of solid wastes from feedlots other than the SPCB rules. Regulations of the State Board of Health do require a permit for all solid waste disposal facilities. Although there is no specific exemption made for agricultural operations, the State Board has not required feedlot operators to apply for state permits. The State Board of Health has overriding authority to set minimum standards for solid waste disposal sites (19-2-1-32). Counties also have the power to establish and regulate sanitary landfills (17-2-24-1). In cities, the Board of Sanitary Commissioners has the power to prevent solid waste pollution (19-2-27-3). Cities may also prohibit the depositing of unwholesome substances, except for the purpose of soil enrichment, on private or public land (13-5-10-7).

ADDRESS: Environmental Management Board
1330 W. Michigan Street
Indianapolis, Indiana 46202
317/633-8404

3. AIR

The EMB and the Air Pollution Control Board (APCB), assisted by the SBH, are jointly responsible for implementing the state's air pollution control program (13-1-1-4, 13-7-2-9). Air pollutants are defined by one statute (13-7-1-2) to include odors but in the statute creating the APCB, the definition of air contaminants makes no mention of odors (13-1-1-2). The EMB is encouraged to aid local bodies in developing programs to provide odor pollution control (13-7-3-1). In preparing abatement orders, the APCB must take into consideration the social and economic value of the activity causing the emissions and the feasibility of installing a control device (13-1-1-4). Otherwise, the basic regulatory device is a permit requirement for all air pollution sources (13-7-10-1). In addition to the APCB, certain urban counties and all large cities have the authority to regulate sources of air pollution, including odor sources, within their jurisdictions (18-4-21-2, 18-1-1.5-12). The APCB-promulgated regulations define air pollutants without mentioning odors, although odor is contained in one of the two relevant state statutes. There is a definite limit on the amount of fugitive dust which may escape beyond the property line from any source (Reg. 13-1-1-4-30). The ground level ambient air concentrations must not exceed 50 micrograms per cubic meter for a 60-minute period. Agricultural operations utilizing every reasonable precaution to minimize emissions are exempted from the regulation.

ADDRESS: Air Pollution Control Board
1330 W. Michigan Street
Indianapolis, Indiana 46206
317/633-4273

4. COMMERCIAL FEED AND FERTILIZER

All commercial feeds must be registered with the Director of the Purdue University Agricultural Experiment Station (15-5-13-4). Commercial fertilizers are so defined as to exclude non-processed barnyard manure (15-3-3-2). All other fertilizers must be registered with the State Chemist before they may be sold or distributed (15-3-3-4).

5. AGRICULTURE

No person may feed garbage to swine unless it has been boiled for not less than 30 minutes or otherwise treated in accordance with State Board of Animal Health regulations (15-2.1-11-1). Any person who feeds garbage must obtain a permit from the Board (15-2.1-11-2). All individuals, who are feeder - pig or livestock dealers, must be licensed by the state (15-2.1-21-1). All pens must be kept in a reasonably sanitary condition before they will be approved by the Board of Health (15-2.1-12-6). The Board of Animal Health has promulgated regulations that deal with the collection, transportation and cooking of garbage that is fed to swine (Reg. 15-2-4-36-1). All garbage feeding facilities must have impervious floors with curbs to prevent scattering. Suitable drainage must be supplied. All floors must be flushed with water at least once per day to maintain a clean and sanitary condition. Flushing water must be discharged to an adequate disposal system so as not to collect in pools, pollute any surface water or create a nuisance. Garbage which is not eaten must be buried, burned or otherwise disposed of so as not to create a nuisance (Reg. 15-2-36-2). All cooking units and feeding facilities must be so located that obnoxious odors are not likely to become offensive to nearby residents. Premises around the feeding areas must be free of litter, and manure must be disposed of at least twice per week during fly season. Every reasonable precaution must be taken to control fly and rodent problems (Reg. 15-2-4-36-3). Every person who engages in the purchasing or shipping of poultry must obtain a license (15-2.1-13-1). Producers or farmers who buy or sell livestock as an incident of a farming enterprise, and who do not follow a routine pattern of disposing of livestock within 60 days of acquisition, are exempt from the Board's licensing requirements (15-2.1-42). All auction sale barns must be kept in a sanitary condition (Reg. 15-2-4-41-3). All sewage or wastewater must be treated through a septic tank, filter bed or covered settling pool (Reg. 15-2-4-41-6). All such premises must be cleaned and disinfected on a regular basis (Reg. 15-2-4-41-7). The use of manure as feed is not mentioned in the regulations.

6. NUISANCE

Nuisance is broadly defined by statute (34-1-52-1). A nuisance may be abated or enjoined by anyone (34-1-52-3). There is one reported case of a slaughterhouse being declared a nuisance. A decision in another recent case stated that the keeping of hogs is not a nuisance per se but may become so where bad husbandry techniques are used which create offensive odors and excessive breeding of vectors. The keeping of any animal which may lead to noisome smells is a public nuisance (35-1-102-2). The befouling of water with any noisome substance is also a public nuisance (35-1-103-4). The depositing in water of any harmful material which may adversely affect the agricultural or livestock industry may be abated by the person suffering the damage (16-1-26-1). Local boards of health, as well, are given the authority to abate nuisance (18-1-13-1). Cities have the power to prohibit the disposal of all domestic or sanitary sewage as well as to license the possession of any animal (18-1-1.5-7). There is a general regulation of the State Board of Health that prohibits the discharge of garbage or sewage into lakes. Garbage is defined to include animal manure (Reg. 16-1-3-13-3).

7. SOIL AND WATER CONSERVATION DISTRICTS

There is a State Soil and Water Conservation Committee with advisory powers (13-3-1-4). Local Soil and Water Conservation Districts may develop comprehensive plans for conservation of soil and water resources but have no definitive land use control authority (13-3-1-8). A proposed amendment to the Soil and Water Conservation Law would grant SCD's greater regulation authority over erosion and sediment control problems. No individual could engage in a land disturbing activity without obtaining a permit from the SCD after filing an approved plan for erosion and sediment control. The state would provide a certain amount of cost-sharing funds.

8. PLANNING AND ZONING

Cities are given the power to plan and zone with no mention being made of agricultural uses (18-1-1.5-10). Cities have the authority to regulate the location and keeping of hog pens. Counties with large cities may have a unified city-county zoning and planning system (18-7-2-1). There is no exception for agricultural uses (18-7-4-46).

Indiana was granted NPDES authority on January 1, 1975. The authority is administered by the Indiana Stream Pollution Control Board.

IOWA

Key to Legal Citation
Iowa Code (§____)
(455B.31)

1. WATER

The Department of Environmental Quality (DEQ), Water Quality Management Division, and the Water Quality Commission are the agencies responsible for implementing the state's water pollution control program (455B.31, 455B.32). Agricultural wastes would probably fall under the broad category of "other wastes" rather than that of sewage, although the definition of sewage is general enough to include wastes from feedlot operations (455B.30). The DEQ has promulgated a series of regulations specifically dealing with feedlots. A minimum level of waste control for settleable solids is expressed in terms of waste-flow velocity being reduced to less than 0.5 foot/second for a minimum of five minutes. This requirement applies to all feedlots regardless of size. No direct waste discharge is allowed from any animal feeding operation into a publicly-owned lake or impoundment or into a sinkhole. All feedlots, regardless of size, must dispose of waste through land application in such a manner as to not cause surface or groundwater pollution [Reg. 20.2(6)]. All open feedlots must be able to retain wastewater from feedlot areas generated by the 25-year, 24-hour storm [Reg. 20.2(2)]. The regulations recommend use of waste retention basins and terraces [Reg. 20.2(2)]. Four types of feedlots must seek operation permits from the DEQ. Open feedlots must obtain permits if the animal capacity exceeds 1,000 beef cattle, 700 dairy cattle, 2,500 swine, 10,000 sheep, 55,000 turkeys, or any combination thereof, or if waste drainage enters a watercourse that drains more than 3,200 acres above the point at which feedlot drainage enters the watercourse [Reg. 20.3(1)]. Confinement feeding operations are defined as consisting of totally roofed animal enclosures in which animals are confined for a period of not less than 45 days and in which the wastes are stored as a liquid or semi-liquid [Reg. 20.1(4)]. If these operations use an earthen waste storage facility, such as a lagoon or holding basin, the operator must secure a permit if the animal capacity exceeds 200 beef cattle, 140 dairy cattle, 500 swine, 11,000 turkeys or 18,000 chickens [Reg. 20.3(2)]. If waste storage tanks are used, the minimum figures are increased to the same level as for open feedlots with an additional limit on chicken feeding operations of 90,000 units. If the feedlot has a waste discharge through a man-made drainage system, then an operation permit is required if the animal capacity exceeds 100 beef cattle, 70 dairy cattle, 250 swine, 1,000 sheep, 5,500 turkeys or 9,000 chickens [Reg. 20.3 (3)]. If the feedlot has a discharge into a watercourse which traverses the operation, it must apply for an operation permit if its animal capacities are those of the man-made drainage system [20.3(4)]. Expansion of existing animal feeding operations requires a new operation permit [20.4(3)]. New facilities must seek an operating permit at least 90 days before operations are scheduled to begin unless an NPDES permit is required; in this case the lead time is 180 days [20.4(4)]. Feedlots which qualify for an operating permit must also seek a construction permit. Plan and specification review is done by the DEQ (20.5). The DEQ also has issued guidelines regarding land disposal of animal wastes; it considers this to be the primary means of disposal. There are limitations on the water application rate depending on the nitrogen and phosphorus content of the manure. Disposal on frozen or snow-covered land is discouraged. A recommended waste nutrient application rate is suggested. Limits for the nitrogen application rate are set at an average of 250 pounds/acre/year, with a maximum application of 400/pounds/acre/year. Manure should be incorporated within 30 days if applied to flood-prone lands.

Manure must also be incorporated if spread within 200 feet of a water body.

ADDRESS: Department of Environmental Quality
Water Quality Management Division
3920 Delaware Avenue
P. O. Box 3326
Des Moines, Iowa 50316
515/265-8134

2. SOLID WASTES

The DEQ, Solid Waste Disposal Division and the Solid Waste Disposal Commission are the agencies responsible for implementing the state's solid waste management program (455B.75). Agricultural wastes are specifically included in the definition of solid waste (455B.75). The primary responsibility for development of sanitary disposal projects and plans is, however, delegated to the cities, counties and towns (455B.76). The Commission defers regulatory authority over feedlot operations to the Water Quality Management Division.

ADDRESS: Department of Environmental Quality
Solid Waste Disposal Division
3920 Delaware Avenue
P. O. Box 3326
Des Moines, Iowa 50316
515/265-4263

3. AIR

The DEQ and the Air Quality Commission are the agencies responsible for implementing the state's air pollution control program (455B.12). Any political subdivision, city or county may administer an air pollution control program within its boundaries provided that approval is obtained from the DEQ (455B.23, .24). Air contaminants are defined to include dust and odorous substances (455B.10). Existing regulations define an objectionable odor as one which is believed to be objectionable by 30% or more of a random sample of people. The DEQ has recently amended its odor regulations. The definition of objectionable odor has been replaced by the use of three new terms: odor, odorous substance and odorous substance source. No attempt is made to quantify odor. These definitions become effective January 1, 1978. Special requirements are made for users of anaerobic lagoons. They must seek DEQ permits and provide on the application forms the animal capacity, type of animal, method of feeding and methods of waste collection and disposal. Structures used on farms or ranches for agricultural purposes, except for anaerobic lagoons, are exempt from the permit requirements. These regulations are also to become effective on January 1, 1978. The following regulations, governing specific odorous substances, will not become effective until January 1, 1979. There is a general proscription against the emission of an odorous substance so as to create a nuisance. An exception is made for the periodic spreading of animal manure on farmland if reasonable care is taken to minimize odor problems. Recommended practices include immediate soil incorporation, proper disposal site location, and proper climatic conditions. Reference is given to the land application guidelines of the Water Quality Division. Odor complaints may be filed with either the local board of health or the DEQ. The complaint must be filed by 3 or more citizens, from different occupied premises within 5 miles of the source, who allege that the odor has occurred on at least 10 days of any 30-day period. The DEQ must investigate the complaint; if it finds the complaint valid and if negotiations fail, the DEQ must issue a notice of violation. New feedlots large enough to require a water permit must also seek a permit from the Air Quality Commission after submitting to the DEQ the plans and specifications for the propsoed facility. The regulations exempt emitters of fugitive dust from the permit requirement. Farming operations are exempted from the fugitive dust regulations.

ADDRESS: Department of Environmental Quality
Air Quality Management Division
3920 Delaware Avenue
P. O. Box 3326
Des Moines, Iowa 50316
515/265-8134

4. COMMERCIAL FEED AND FERTILIZER

The Department of Agriculture regulates the sale and distribution of commercial fertilizers and feeds (189.1). Commercial feed is broadly defined as all materials used in feed (198.3). If the feed is adulterated, as defined in the statute, it may not be distributed (198.7). Feed is considered to be adulterated if it contains deleterious substances which may be injurious to health, if it is a raw agricultural commodity which contains a pesticide chemical, or if it contains any non-nutritive substances which are unsafe under FDA rules (198.7). Iowa has allowed one type of dried poultry waste to be registered as a commercial feed because it has met the recommended guidelines as set forth in the 1976 AAFCO handbook. Fertilizers are so defined as to exclude unmanipulated animal manures (200.3).

5. AGRICULTURE

The Department of Agriculture is charged with the responsibility of encouraging agricultural interests including feedlot operations (159.2). The Department has the power to enact regulations prohibiting the feeding of garbage, including animal waste materials, unless the garbage has been boiled for a period of 30 minutes (163.26-27). The Department is also charged with suppressing disease and with the regulation of sanitary conditions of feedlots (163.1). The Department of Health and Welfare has the responsibility of regulating the sanitary conditions of dairies (37-302).

6. NUISANCE

State, county and municipal boards of health have the primary responsibility over public health matters, including the right to issue permits for the collection and disposal of solid wastes (137.7). As seen earlier, local boards are involved in the air pollution regulatory scheme dealing with odor complaints. They also have the power to abate nuisance which is broadly defined by statute (657.1). Several court decisions have held various feedlot operations to be nuisances, primarily because of the odor problem.

7. SOIL AND WATER CONSERVATION

There is a State Soil Conservation Committee within the State Department of Soil Conservation with advisory and governing authority (467A.4). Local conservancy districts do not possess land use authority, but they may review other governmental plans that have an impact on soil conservation, flood control or sediment loss (467D.6). Local districts do have authority to implement soil erosion prevention plans (467D.17-18).

8. LAND USE

Counties have the power to zone, although a specific exemption is made for agricultural land, farm houses, farm barns and farm buildings (358A.2). Farms are, however, covered by any flood plain regulations that the county may enact (358A.2). Cities also have the authority to zone and plan (414.1-2). Cities may zone up to two miles outside their boundaries if the county has not done so (414.23). However, the agricultural exemption applied to county zoning is also applicable to that of the city (414.23). There are conflicting opinions, both by the courts and the Attorney General, as to the exempt status of commercial feedlots. The primary criterion seems to be the land use before the feedlot was built.

9. MISCELLANEOUS

An important new law was enacted by the Iowa legislature in 1976 with an avowed purpose of protecting the feedlot operator. Compliance with the statutory requirements by a feedlot operator is an absolute defense to a nuisance action if the person complaining did not own the affected realty prior to the "established date of operation" of the feedlot (172D.2). Compliance with applicable DEQ and US EPA rules is mandatory if the rules were promulgated prior to July 1, 1975 (172D.3). The DEQ rules affecting air quality adopted prior to November 1, 1976 apply to every feedlot regardless of its established date of operation. All air qulaity rules relating to feedlot management standards adopted after November 1, 1976, do not apply to pre-existing feedlots for a period of one year after the effective date of the rule. Rules relating to feedlot design standards adopted after November 1, 1976, do not apply to a pre-existing feedlot for a period of 10 years from the established date of operation of the feedlot or of two years from the effective date of the rule, whichever is greater (172D.3). All other DEQ rules in effect prior to November 1, 1976, also apply to all pre-existing feedlot operations. Rules adopted after November 1, 1976 do not apply to feedlots with existing DEQ permits for a period of 10 years from the established date of operation or 5 years from the effective date of the rule, whichever is greater (172D.3). A rule adopted after November 1, 1976, that affects a feedlot which previously was not required to obtain a DEQ permit provides a similar grace period (172D.3). Zoning ordinances apply to feedlots where the ordinance predates the feedlot. Zoning ordinances, other than municipal, adopted after the established date of operation do not apply for a period of 10 years from enactment. A city zoning ordinance enacted prior to November 1, 1976, applies to all feedlots. A city zoning ordinance does not apply to a feedlot which has been annexed or incorporated into the city after November 1, 1976, for a period of 10 years from the acquisition of jurisdiction by the city (172D.4).

The Iowa program has not been approved for the National Pollutant Discharge Elimination System.

KANSAS

Key to Legal Citation
Kan. Stat. §____
(§____)
(65-159)

1. WATER

The Department of Health and Environment (DHE) is the agency primarily responsible for implementing the state's water pollution control program (65-159). However, the water pollution law specifically gives the State Livestock Sanitary Commissioner and Animal Health Board continuing authority to regulate and implement feedlot controls (65-171i). Agricultural wastes would seem to fall under the definition of sewage (65-164). This would trigger a requirement that a sewage discharge permit be issued (65-165). In practice, the DHE has segregated the feedlot and agricultural waste problems and treated them differently. The regulations require a permit for all confined feeding operations of 300 or more animals, all operations that use a lagoon and all operations that have a water pollution potential (Rule 28-18-1, 2). For cattle, the minimum requirement is a detention pond capable of containing three inches of surface runoff from the feedlot. Waste collected in the pond must be disposed of as soon as practicable (Rule 28-18-3). For swine, lagoons are allowed in lieu of treatment facilities but they must be capable of retaining all wastewater and solid waste matter from the feeding areas as well as three inches of runoff. For sheep, retention ponds capable of holding three inches of runoff are sufficient. Any discharges from retention ponds must meet the applicable water quality requirements. Waste materials may be disposed of or stockpiled provided that they do not contribute to water pollution (28-18-4). Additional guidelines have been issued which establish the general construction and operational requirements for control facilities. These include the requirement of a minimum capacity sufficient to hold the runoff from a 10-year, 24-hour rainfall event. Disposal facilities, also, are regulated and irrigation disposal equipment must be owned and operated by, or be under contract to, the feedlot operator. There are waste disposal application rate guidelines dealing with dewatering, rate of application (3 acre-inches/acre) and total annual limits (12 acre-inches or 20-30 tons/acre). Disposal must be on land that is utilized for crop production.

ADDRESS: Department of Health and Environment
Bureau of Water Quality
Forbes AFB Bldg. No. 740
Topeka, Kansas 66620
913/862-9360

2. SOLID WASTE

The DHE, Bureau of Environmental Sanitation is the agency responsible for implementing the state's solid waste control program (65-3402). Agricultural wastes are specifically included within the definition of solid wastes. There is, however, a specific exemption for the feedlot operator who deposits manures on his own or on leased land, and a general exemption for agricultural uses of solid wastes provided that the operation does not create a public nuisance (65-3409). All solid waste must be so stored as to prevent excessive numbers of insects and other vectors and to minimize production of offensive odors.

ADDRESS: Deaprtment of Health and Environment
Bureau of Environmental Sanitation
Forbes AFB Bldg. No. 740
Topeka, Kansas 66620
913/862-9360

3. AIR

The DHE, Bureau of Air Quality is the agency responsible for implementing the state's air pollution control program (65-3002). Local air pollution control programs may operate concurrently with those of the DHE if they meet the minimum requirements set by the DHE (65-3010). Air contaminants are defined to include odorous substances and dust (65-3002). Although there have been numerous odor-related complaints from residents living near feedlots, the DHE has not adopted odor control regulations. The Bureau of Air Quality usually refers odor complaints to the Bureau of Water Quality. The DHE has promulgated a fugitive dust regulation prohibiting activities which cause particulate concentrations at the property line which exceed 20 milligrams/cubic meter for a period of 20 minutes. The DHE has enforced this regulation against the larger feedlots, forcing them to change their feed handling operations.

ADDRESS: Department of Health and Environment
Bureau of Air Quality
Forbes AFB Bldg. No. 740
Topeka, Kansas 66620
913/862-9360

4. COMMERCIAL FEED AND FERTILIZER

All commercial feeds must be licensed by the Department of Agriculture before they may be sold in the state (2-1003). Adulterated feed may not be sold, with "adulterated" being defined as anything that would be injurious to the health of livestock or poultry (2-1011). Commercial fertilizers are also regulated by the Department of Agriculture (2-1201). They, too, must be registered before they may be sold (2-1201b). There is no exception for unmanipulated animal manures, but there is an exception for domestic animal dung (2-1201).

5. AGRICULTURE

It is unlawful to feed unprocessed garbage to animals (47-1302). Garbage is broadly defined and would seem to include animal wastes (47-1301). The Animal Health Board (AHB) and Sanitary Commissioner have the responsibility of enforcing these rules (47-1304). The AHB is given primary administrative responsibility under the Kansas Feedlot Licensing Law (47-1501). Any feedlot having over 1,000 head is required to obtain a license from the Sanitary Commissioner (47-1503). Before the license may be issued the owner must satisfy seven requirements, including sanitary and waste disposal procedures, mandated by both the statute and the regulations (47-1505). These include reasonable methods for disposal, control of pests, adequate drainage, availability of mechanical means for scraping, etc. The AHB provides expert advice to feedlots upon request (47-1511). The AHB regulations require that the feedlots be scraped at least twice a year and limit the disposal of wastes to hauling to farmland, dehydrating, and depositing in lagoons (Reg. 9-8-1). Control of insects and rodents is also mandated. Insecticides may be utilized in the feedlot operation. Surfaces of feedlots must be sloped to prevent accumulation of surface water (Reg. 9-8-4). Fianlly, the AHB has recommended feedlot management practices concerning cleaning of lots, insect control and water pollution. The AHB regulations specifically require that all 300-head feedlots must obtain a water permit from the DHE. The AHB also requires livestock markets to be licensed and kept in sanitary condition (47-1001). The State Dairy Commissioner has the authority to inspect all dairies for cleanliness (65-701).

ADDRESS: Animal Health Board
109 West 9th Street
Topeka, Kansas 66612
913/296-2326

6. NUISANCE

The DHE has the primary responsibility for abating nuisance (65-159). This power may be delegated to local boards of health as well (65-159). By regulation, the collection or accumulation of animal excrement or offal that can become a breeding place for insects is a nuisance (Reg. 28-5-4). The DHE solid waste regulations broadly define nuisance in terms of the storage, handling and disposal of solid waste. Any domestic animal pen that pollutes a water supply, surface or underground; which is maintained in a manner that attracts flies or rodents; or is within 300 feet of a dwelling other than that of the owner is a nuisance (Reg. 28-5-4). Maintaining a public nuisance is a Class C misdemeanor (21-4106). Cities, also, have nuisance abatement authority (12-1617e).

7. SOIL AND WATER CONSERVATION

The State Conservation Commission has advisory and assistance powers over local conservation districts (2-1904). Local districts do not possess land use authority (2-1908). All landowners have the duty to minimize wind-blown dust and soil erosion (2-2002). Counties may require owners to take certain actions and, if no action be taken, may do the work themselves and assess the cost of the project against the land (2-2006).

8. LAND USE

The AHB requires all feedlots to comply with applicable zoning ordinances. Cities are authorized to zone and plan (12-707). Counties may zone (19-1901), but their zoning ordinances may not apply to agricultural uses of the land (19-2908). Several cases have held that feedlots are agricultural, not commercial, enterprises and therefore may not be regulated by county zoning. There is no system for preferential assessments for agricultural land, although appraisers are instructed to utilize agricultrual values in ascertaining fair market value (79-503).

9. SPECIAL SANITATION ZONES

The DHE is responsible for the protection of certain reservoirs through the designation of areas as sanitation zones (65-186). While agricultural uses are exempted, feedlots are not (65-189e). The DHE is to regulate solid waste disposal so as to prevent pollution within these zones (65-187).

The Kansas program for the NPDES was approved on June 28, 1974. The authority is administered by the Kansas State Department of Health, Division of Environmental Health.

KENTUCKY

Key to Legal Citation
Ky. Rev. Stat. §____
(§____)
(12.020)

1. WATER

The Department of Natural Resources and Environmental Protection (DNREP), Division of Water Quality is the agency responsible for administering the state's water pollution permit system (12.020). Water pollution is defined broadly to include any alteration of the physical, chemical or biological properties of the water (224.005). No definition is given in the statute for sewage or wastes (224.005). The regulations, however, specifically include within the definition of "other wastes," wastes from agricultural enterprises. Rule-making authority is vested in the Environmental Quality Commission (EQC) (224.045). The regulations provide for prior submission of plans and specifications for all discharges into the waters of the state (Reg. 401 KAR 5:005). All waters must be kept free from color, odor or other nuisance-type conditions (Reg. 401 KAR 5:025). If a water body is to be used for agricultural or livestock purposes, it must meet the above standards and also be free from sludge or other floating materials (Reg. 401 KAR 5:025). If the discharge includes biochemically degradable wastes, they must be treated to limit the amount of BOD, suspended solids, and fecal coliform bacteria in the effluent, as well as to control the pH (Reg. 401 KAR 5:045). Point source dischargers into streams must apply best available technology economically achievable. The DNREP may grant total or partial exemptions from the permitting requirements (224.073). The state is empowered to seek civil damages against individuals who pollute the waters, causing injury to fish or other wildlife (224.110). There is a state-wide Pollution Abatement Authority with power to give financial assistance to prevent pollution of the waters, but the receiving agency must be a governmental body (224A.035).

ADDRESS: Dept. of Natural Resources and Environmental Protection
Division of Water Quality
Capitol Plaza Tower
Frankfort, Kentucky 40601
502/564-3410

2. SOLID WASTE

The DNREP, Division of Solid Waste is responsible for implementing the solid waste management program (224.005). Solid waste is defined broadly to include all putrescible refuse, but there is no specific reference to agricultural wastes (224.005). The basic regulatory system appears to be licensing and regulation of landfills (224.880). The regulations do not exempt agricultural activities, although the entire thrust of the program appears to concern the municipal sanitary landfill operations. The DNREP approves disposal methods which a county or city may utilize for garbage and refuse

(109.010). The DNREP may also call for the creation of sanitation districts within the state for the purpose of developing solid waste management plans (220.020).

ADDRESS: Dept. of Natural Resources and Environmental Protection
Division of Solid Waste
Capitol Plaza Tower
Frankfort, Kentucky 40601
502/564-6717

3. AIR

The DNREP, Division of Air Pollution Control is responsible for implementing the state's air pollution control program (224.005). Air contaminant is defined to include odors. There are two regulations that are generally applicable to feedlot operations, one being an odor regulation and the other a fugitive dust emissions limitation. The odor regulation requires that the odor not be detectable at equal to or greater than 7 dilutions on a Barnebey-Cheney scentometer at the property line (401 KAR 8:020). It is to be enforced if a homestead nuisance situation is proven. The DNREP recommends ameliorative measures to minimize "fugitive particulate matter" (401 KAR 3:060). These include the utilization of good agricultural practices so as not to create a nuisance. No person may discharge visible fugitive dust emissions beyond the property line. The DNREP may exercise concurrent abatement powers with local air pollution control districts if it certifies that their program meets the minimum standards created by the state (224.450). The program may be operated by either cities or counties. The statute specifies an opacity limitation (77.155), but exempts equipment used for agricultural operations in the growing of crops or the raising of fowl or animals (77.160). Likewise, the local permitting requirements are waived for equipment used in agricultural operations (77.195).

ADDRESS: Dept. of Natural Resources and Environmental Protection
Division of Air Pollution Control
Capitol Plaza Tower
Frankfort, Kentucky 40601
502/564-3350

4. COMMERCIAL FEED AND FERTILIZER

All commercial feeds must be registered with the Department of Agriculture (250.511). The Director of the Agricultural Experiment Station may by regulation exempt such feeds as he deems to be not adulterated (250.501). All fertilizers must be registered and properly labelled (250.400). There is no specific definition of commercial fertilizer in the statute.

5. AGRICULTURE

All statutes that refer to cattle are also applicable to sheep, hogs, or goats (446.010). All individuals in the business of collecting animal carcasses must be licensed by the Commissioner of Agriculture (263.020). All owners or operators of stockyards must be licensed by the Department of Agriculture (261.230). This requirement is not applicable to the individual feedlot owner who sells cattle or other livestock from his own property (261.200). In any establishment in which there is slaughtering or processing of poultry or rabbit products, the facilities must by operated in accordance with sanitary regulations of the Department of Agriculture (217A.070). Both the Department and counties may appoint livestock inspectors who may order and enforce minimum sanitary conditions at feedlots (257.030). All poultry hatcheries and dealers in chicks or eggs must be licensed by the livestock sanitary division of the Department (257.420). The livestock dealer licensing law is not applicable to farmers who sell only livestock which they have produced and raised on their own premises (257.510). The law is also not applicalbe to those who purchase livestock for feeding purposes and retain them for a period of 30 days or more if they are not regularly engaged in the business of buying, selling or negotiating the transfer of livestock (257.520). All others must be licensed by the Department (257.530). The Department also inspects dairy farms (217C.040). There is apparently no prohibition against the feeding of garbage to swine.

6. NUISANCE

The Department of Human Resources has the authority to abate all nuisance within the state (211.210). The fine for continuing a nuisance-type condition is not less than $10 nor more than $100 (211.990). Every property owner in cities has a duty not to allow his property to become a public nuisance (381.770). Both city and county health boards also have the power to abate nuisance (212.245). Large cities may prohibit, remove or regulate the erection or maintenance of any stockyard, slaughterhouse, pigpen, cow stable, or dairy within and up to two miles outside of the city limits (84.220). Smaller cities have only one mile extraterritorial jurisdiction for nuisance abatement (85.180).

7. SOIL AND WATER CONSERVATION

The State Conservation Commission, which oversees local districts, is located within the DNREP (262.010). The State Commission's functions are mostly supervisory (262.090). Local districts may be created by election (262.120). The local district may develop soil conservation plans and employ erosion-control measures (262.310-320). Land use regulations may be imposed after a local referendum (262.360).

8. LAND USE

There is a statewide Council for Land Use Planning (147.330). Although its functions are mostly advisory and planning oriented, it may study methods for identifying areas of critical environmental concern and development of regional benefit that may fall under state regulation (147.350). Both cities and counties have the authority to zone or plan (100.203). There are no exceptions made for agricultural uses. Land which has been devoted to agricultural or horticultural uses may be assessed at agricultural value only for purposes of the ad valorem tax (132.450). There is a 2-year deferred tax penalty for land that is no longer used for agricultural purposes (132.450).

Kentucky does not have an approved National Pollutant Discharge Elimination System program.

LOUISIANA

Key to Legal Citation
La. Rev. Stat. Ann. §____ (West)
(§____)
(56:1433)

1. WATER

The Stream Control Commission (SCC) (56:1433) and the Health and Human Resources Administration (HHRA), Water Quality Branch (40:11) are the agencies responsible for implementing the state's water pollution control program. All discharges which tend to destroy fish or animals, wild or domestic, are prohibited (25:1440). All dischargers who cause water pollution are punishable by fines of not less than $100 nor more than $2,000, with possible incarceration for up to 120 days (56:1461-3). No wastes, including animal wastes, may be discharged into public waters without receiving the best practicable secondary treatment (56:1464.1). The SCC is the permit-issuing agency for all dischargers of waste into the waters of the state (56:1434, 1439). The HHRA becomes involved in the water pollution control program through its general nuisance abatement powers (40:11) and Sanitary Code Regulations. Engineering standards for controlling runoff from feedlots and dairies have been adopted by an ad hoc Animal Waste Disposal Committee. (The Committee is made up of representatives from the HHRA, the SCC, the US Department of Agriculture, Louisiana State University, the US Soil Conservation Service, the US Agricultural Extension Service, and the US Agricultural Stabilization and Conservation Service.) The Committee has adopted the two-cell lagoon disposal system recommended by the SCS. Cost-sharing grants from the ASCS for waste disposal systems are available only to operations whose plans comply with the recommended engineering standards. The contamination of public water supplies is a criminal act punishable by fine, imprisonment or both (14:58). The Wildlife and Fisheries Commission, also, may prevent water pollution which kills fish or renders the waters unfit for maintenance of normal fish life (56:362). Any individual who engages in domestic fish farming must obtain a permit from the Wildlife and Fisheries Commission (56:412). In addition, all domestic fish operations are deemed to be agricultural pursuits and the fish are defined to be livestock for purposes of state regulation (56:411).

ADDRESS: Health and Human Resources Administration
Division of Health
P. O. Box 60630
New Orleans, Louisiana 70160
504/568-5101

Stream Control Commission
P. O. Drawer FC
University Station
Baton Rouge, Louisiana 70893

2. SOLID WASTE

The HHRA, Bureau of Environmental Services again through its general nuisance abatement powers, has enacted solid waste regulations in the Sanitary Code. Both dairies and other feedlots fall under the aegis of the HHRA (Reg. 5.B.103). All manure must be removed so as to prevent excessive vectors, and the cow yards must be kept clear of stagnant water, mud and wastes (Reg. 5.B.102). The Sanitary Code also deals with the problem of refuse disposal. Refuse is defined to include animal wastes. In addition, there is a category of stable refuse, which is also controlled (Reg. 10.50.1). No landowner may allow refuse to accumulate so as to risk excessive infestation by vectors (Reg. 10.51). The method used for the disposal of refuse must be approved by the HHRA (Reg. 10.53). Owners of confined animal facilities in built-up areas must dispose of all stable refuse promptly and must keep the area in a sanitary condition (Reg. 10.56). Manure must be kept in covered containers (Reg. 10.56). All owners of other confined animal operations must remove the stable refuse daily (Reg. 10.56). The HHRA may also enforce standards to regulate obnoxious odors under its general grant of authority (40.11). As of this date there are no general regulations dealing with the odor problem, the HHRA preferring to handle the problem on a case-by-case nuisance basis.

ADDRESS: Health and Human Resources Administration
Bureau of Environmental Services
State Office Building
New Orleans, Louisiana 70112
504/527-5111

3. AIR

The HHRA, Air Quality Section and the Air Control Commission (ACC) are the agencies responsible for implementing the state's air pollution control program (40:2202). Odors are not specifically mentioned in the definition of an air contaminant (40:2204). There appears to be a conflict between the authority of the HHRA to promulgate odor regulations and the statutory exclusion of all regulation of air contaminants other than by the ACC with the sole exception of private actions to abate nuisance (40:2216). The HHRA handles odor complaints on a case-by-case basis, regardless of the apparent conflict with the ACC's authority over air contaminants (40:2216). The ACC has not enacted any odor-related regulations. There is, however, a regulation requiring that all reasonable precautions be taken to prevent the emission of fugitive dust.

ADDRESS: Health and Human Resources Administration
Air Quality Section
325 Loyola Avenue
New Orleans, Louisiana 70160
504/563-5214

Air Control Commission
P. O. Box 60630
New Orleans, Louisiana 70130
504/568-5521

4. COMMERCIAL FEED AND FERTILIZER

All feeds which are to be fed to livestock, including fish, must be registered with the Commissioner of Agriculture and Immigration (3:1891). Manure is not excluded from the definition of commercial feed (3:1891). All fertilizers must also be registered with the Fertilizer Commission (3:1312). Manure is excluded from the definition of fertilizer unless it has been dried or otherwise treated (3:1311).

5. AGRICULTURE

Dairies and their waste disposal procedures are regulated by the HHRA through the Sanitary Code (Reg. 5.A.6). The water pollution problems are handled through the aforementioned ad hoc General Waste Disposal Committee. The HHRA also prohibits the feeding of garbage, unless boiled for a period of 30 minutes in a process approved by the HHRA, to swine (Reg. 10.54). The State Livestock Sanitary Board, chaired by the Commissioner of Agriculture, has members representing poultry, cattle, swine and sheep producers (3:2091). Its primary function is to regulate livestock diseases. The Board also regulates livestock dealers engaging in the business of buying or selling livestock at any privately operated sales pen or concentration point (3:561). All dealers must be licensed by the Board (3:563).

6. NUISANCE

The HHRA is given authority to control and abate nuisance within the state (40:11). Both parish (county) and local boards of health may administer to all matters of local sanitation, including nuisance abatement (40:35). Cities may prohibit garbage or refuse disposal dumps within their borders (33:4168). Livestock may not go on levees (3:2571). Most cities or towns may by ordinance regulate, restrict or prohibit the running at large of livestock and the establishing of pens and yards. They may impose certain fees and charges for such activities (3:2531). Cities and towns may also abate nuisance which is defined to include hog pens, slaughterhouses or stockyards

(33:401). The local boards of health may also prescribe regulations for cleaning these facilities and for their location within the town (33:401). A parish may enact regulations dealing with the sale of cattle within the parish (33:1326).

7. SOIL AND WATER CONSERVATION

The State Soil Conservation Committee is the umbrella state agency dealing with soil conservation (3:1204). Local Soil Conservation Districts may be created by petition (3:1205). SCD's may utilize land use regulatory power if authorized by the local electorate.

8. LAND USE

Parishes have the express authority to zone and plan (33:1236). By popular vote certain parishes may create environmental protection districts (33:7551). The EPD's may develop plans and zoning ordinances for the undeveloped area around existing residential development. An EPD is required to consult with the Wildlife and Fisheries Commission and the SCC. Cities may plan and zone (33:701, 4722). There is no mention of exclusion of agricultural uses within the zoning power of either the parishes or cities. By virtue of the Louisiana Constitution (art. 7, §18), bona fide agricultural land is to be assessed at 10% of use value, not fair market value. Landowners must apply for the special treatment (47:2304). There are no penalties for changing the use to other than agricultural, except for the loss of eligibility (47:2306).

Louisiana has not been approved to administer the National Pollutant Discharge Elimination System.

MAINE

Key to Legal Citation
Me. Rev. Stat. tit. ____, §____
(Tit.____-§____)
(38-361)

1. WATER

The Department of Environmental Protection (DEP) and the Board of Environmental Protection (BEP) are jointly responsible for implementing the state's water pollution control program (38-361). "Pollutant" is defined to include any kind of agricultural wastes (38-361). The BEP requires permits for all discharges of pollutants (38-413). There are no regulations specifically governing feedlot operations but where discharge to a stream through a man-made device exists, treatment for bacteria and BOD removal is required. The control required will depend upon the class of water which receives the effluent (38-414). The general limits are 20 mg/l BOD_5 and 15 bacteria/100 ml total coliform. In addition, named inland lakes, classified as great ponds, are protected by the Board and all waste control systems must meet state guidelines to prevent environmental damage to said great ponds (38-382). No solid waste disposal area may be located within 300 feet of any classified body of water (38-421).

ADDRESS: Department of Environmental Protection
Bureau of Water Quality Control
State House
Augusta, Maine 04333
207/289-2591

2. SOLID WASTE

The DEP administers the state's solid waste disposal program (38-1304). By statutory definition, however, solid wastes do not include agricultural wastes (38-1303). Maine has a published set of guidelines for manure and manure sludge disposal on land. The document, a combined effort of several state and federal agencies, provides alternatives for farmers to consider. The guidelines suggest that no field spreading be attempted on frozen ground of more than 3% slope. The rate of application on frozen or snow covered ground must not exceed 250 pounds of nitrogen/acre. No manure should be applied within 25 feet of the high water mark of any body of water or within 100 feet of wells, ponds, lakes or marine waters. No spreading should be done on slopes steeper than 25% or on fields adjacent to ponds or lakes. Repeated annual land applications have the additional recommendation of a maximum rate of 500 pounds of nitrogen/acre/year. Before one may pile manure, the soil should be examined by a soil scientist and found suitable. Manure should not be stored for more than one year, it should not be stored or piled on a slope exceeding 8% or within 300 feet of a body of water, and the site selected should be such as to minimize the drift of possible odors downwind to nearby residences. Burial of manure should occur only on suitable soils. Burial sites should not be located within 300 feet of a body of water or on a slope exceeding 8%. Surface water must be diverted away from the burying trench. Total nitrogen buried should not exceed 5,000 pounds per acre. Similar guidelines exist for composting manure. Disposal systems from lagoons should seek DEP or Department of Agriculture approval. They must be located on suitable soils and be at least 300 feet from the nearest body of water. Liquid wastes must be disposed of by irrigation at a rate not to exceed 500 pounds of nitrogen per year. Spraying should not be done within 100 feet of wells or lakes.

ADDRESS: Department of Environmental Protection
Land Quality Control
State House
Augusta, Maine 04333
207/289-2111

3. AIR

The DEP is also responsible for administering the state's air pollution control program (38-582). Odor is not specifically mentioned in the definition of air contaminant (38-582). Animal wastes are defined as a type 4 waste (38-582). The wastes classification scheme relates to controls on incinerators used to burn wastes. There are no specific regulations applicable to feedlots, but there is a general prohibition against the discharge of air contaminants, which would apply to the feedlot operator (38-591). Local governments may adopt more stringent air pollution regulations (38-597). "Air pollutant" and "air contaminant" are defined broadly enough to include odors and fugitive dust (38-582). Animal excreta are included within the definition of waste for air pollution purposes (38-582).

ADDRESS: Department of Environmental Protection
Bureau of Air Quality Control
State House
Augusta, Maine 04333
207/289-2431

4. COMMERCIAL FEED AND FERTILIZER

The Commissioner of Agriculture is given extensive powers over both commercial feeds and fertilizers (7-12). All commercial feeds must be registered with the Commissioner prior to distribution (7-692). Commercial fertilizers do not include unmanipulated animal and vegetable manures (7-742). All other fertilizers must be registered with the Department (7-743). No adulterated fertilizers may be distributed (7-747).

5. AGRICULTURE

The Department of Agriculture requires that any individual who feeds garbage to swine must obtain a license (7-1814). This does not apply to swine raised solely for the person's own use (7-1814). The Department may inspect dairies for sanitary purposes (7-2311). The Department regulates poultry dealers (7-1801). It also regulates the livestock industry and has the power to adopt regulations (7-1303). All livestock dealers must keep their premises and vehicles in a sanitary condition (7-1307). The Commission is also empowered to promulgate regulations dealing with the sanitation of dairy farm operations (7-2904).

6. NUISANCE

Nuisance is defined very broadly, and includesthe causing of a noisome substance to collect to the detriment of another. Water pollution is also included within the definition (17-2802). The Department of Human Services is given the responsibility of abating nuisance (22-1). Placing of manure in a local dump without permission of the city health officer is specifically prohibited (30-4102).

7. SOIL AND WATER CONSERVATION

There is a State Soil and Water Conservation Commission with largely advisory powers (12-54). Local soil and water conservation districts may not possess land use authority (12-6).

8. LAND USE

The DEP is given extensive control over the location of large-scale development where the area affected exceeds 60,000 square feet (38-482). This would undoubtedly include all feedlot operations of any size. A permit from the Department will be issued only after a public hearing, a finding that there will be no adverse effect on the natural environment, and a determination that the operator can meet state air and water quality control standards (38-484). The state has an extensive land use law which affects new agricultural facilities. By a specific exemption, operating farms and accessory buildings are excluded from the operation of the state land use law (12-685A). Otherwise, a state permit is required to determine that the state land use district regulations have been met (12-685B). Counties and cities are also empowered to plan and zone (30-4962).

ADDRESS: Land Use Regulation Commission
State House
Augusta, Maine 04333
207/289-2631

Maine has not been authorized to administer the National Pollutant Discharge Elimination System.

MARYLAND

Key to Legal Citation
Md. Ann. Code art. ____, §____
(Art.____-§____)
(8-1404)

1. WATER

The comprehensive water pollution control program is operated jointly by the Department of Health and Mental Hygiene (DHMH) and the Department of Natural Resources (DNR) (8-1404). Apparently, the actual program is operated by the Water Resources Administration Division of the DNR (8-201). Agricultural wastes fall under the statutory definition of sewage (43-387). There are no speicific regulations that apply to feedlot operations. All discharges of wastes or waste water, regardless of size, must obtain either an NPDES permit or a state discharge permit (8-1413). All waters must be free of waste that will be unsightly, putrescent, odorous or that may be harmful to human, animal, plant or aquatic life (Reg. 08.05.04.02). The basis for the effluent limits allowed is the quality standard of the receiving water, based on the classification given the stream (Reg. 08.05.04.03). State discharge permits are also required for waste water effluents disposed of by means of spray or other land irrigation systems (Reg. 08.05.04.04). Exemptions from the permit requirements for discharges are made for those who do not contravene the receiving water quality standards (Reg. 08.05.04.05). Plans and specifications must be submitted prior to the request for a state discharge permit (Reg. 08.05.04.08). A state discharge permit is also required for activities that may cause pollution of groundwater (Reg. 08.05.04.04). All feedlots or hog farms which have some discernible collection system, such as a milking parlor with a drain leading to a stream, must obtain an NPDES permit, which Maryland is authorized to issue. For all undefined discharges, as from pasture runoff, there is a special agricultural policy enforced by the DNR in cooperation with the University of Maryland Extension Service and the US Soil Conservation Service. The SCS, through the use of a booklet entitled "Agricultural Waste Management Field Manual", recommends to individual farmers which technique is best suited to their operations. After the farmer accepts the recommendation, a letter is sent to the DNR with a map of the area and a statement of the proposed alternative chosen. The DNR will then send a letter in return, approving the alternative. In this way, the monetary, public hearing and effluent requirements are avoided. Most alternatives involve some type of land disposal, which normally requires a state discharge permit. This, however, is waived for agricultural land disposal. Other land disposal systems involve pre-treatment and application rate limitations. In addition to the general regulatory scheme, there are several miscellaneous statutes which would apply to the feedlot operator. Any pollution of a water body that supplies the drinking water of a community is deemed to be a misdemeanor with a maximum fine of $50 per day for each day of the violation (27-583). There is a Science Advisory Board with no agricultural representatives whose major duty is to recommend policy and regulations for the design of various water pollution facilities (43-718-20). There is a general prohibition against the throwing of refuse into the waters of the state (8-726).

ADDRESS: Department of Natural Resources
Water Resources Administration
Tawes State Office Building
Annapolis, Maryland 21401
301/269-5846

2. SOLID WASTE

The DHMH, Environmental Health Administration is the agency primarily responsible for implementing the state's solid waste management program (43-394). The Maryland Environmental Service has planning and design authority (3-105). The definition of solid wastes includes agricultural wastes (43-387C). Land disposal regulations, which are not applicable by departmental policy to agricultural operations, have been promulgated. Counties have extensive regulatory authority over sanitary landfills and other solid waste disposal facilities (43-387C).

ADDRESS: Department of Health and Mental Hygiene
Environmental Health Administration
P. O. Box 13387
Baltimore, Maryland 21203
301/383-2770

3. AIR

The DHMH, Bureau of Air Quality Control has sole jurisdiction over the air pollution control program (43-690). The definition of air pollution includes the emission of odors (43-691). The primary regulatory tool is a permit system for all sources of emissions (43-706). Cities and counties have the authority to adopt more stringent standards (43-705). No odor or fugitive dust regulations have been enacted by the DHMH.

ADDRESS: Department of Health and Mental Hygiene
Bureau of Air Quality Control
610 North Howard Street
Baltimore, Maryland 21201
301/383-2779

4. COMMERCIAL FEED AND FERTILIZER

Commercial feeds, which include all feeds distributed for any animal, must be registered with the Department of Agriculture (6-107). Commercial fertilizers are defined to exclude unmanipulated animal manure (6-201). All fertilizers must be registered with the Department on an annual basis (6-207).

5. AGRICULTURE

Garbage may not be fed to swine (3-404). Garbage may be so defined by the Secretary of Agriculture as to exclude wastes that have been heat-treated and thus are nonputrescible. Once treated, however, they become commercial feeds subject to the commercial feed law (3-404). Wastes that have been heat-treated and are non-toxic may be included in hog feeds if the finished feeds do not violate standards of the US Food and Drug Administration. The DHMH has the authority to issue annual permits, after inspecting dairy barns (43-575).

6. NUISANCE

The DHMH has the primary authority to set regulations dealing with nuisance-type activities (43-1F). The State Board of Health may investigate all claims of nuisance activities involving waste disposal or water pollution (43-36). City boards of health may abate nuisance within city limits (43-47). Local boards are given special abatement powers over privy pits, pigpens and other installations that occur within city limits (43-49). Towns or villages, even if without local health departments, may make rules and regulations dealing with pigpens or other noxious places that may create a nuisance (43-103). The State Board of Health may also regulate the use of public drinking water supplies and sewage disposal systems which become injurious to the public health (43-393). All counties may regulate slaughterhouses and places where offensive trades are conducted (25A-5). Two counties have been authorized to approve the location of slaughterhouses and other places which may give rise to unsanitary conditions (25-3). Cities may regulate the depositing of garbage in any area (23A-2). Cities may also regulate slaughterhouses and all offensive trades (23A-2). Cities may prevent the depositing of unwholesome substances on private or public property (23B-22). Towns and villages may regulate, prohibit and control the location of stockyards, slaughterhouses, cattle or hog pens, or renderers (23B-22). This is in addition to the usual nuisance abatement authority carried out by local health officials (23B-22).

7. SOIL AND WATER CONSERVATION

The State Soil Conservation Committee is the umbrella state agency governing local districts (8-101). Local districts have mostly planning and advisory powers (8-306). Land use powers may be exercised by the districts after the voters so choose in a referendum (8-307-8). Maryland has enacted a sediment control law administered by the DNR. There is an exemption for agricultural land management practices.

8. LAND USE

Cities have the authority to zone under several different statutes (23B-22, 23A-2). Counties, also, may zone and plan (25A-5). There is no exemption for agricultural uses from either the county or city zoning authority. Land that is devoted to agricultural uses may be assessed at use value (81-19). In determining the use value, the zoning of the parcel is one factor to be considered (81-19).

Maryland was approved to administer the NPDES on September 5, 1974. The authority is vested in the Maryland Department of Natural Resources, Water Resources Administration.

MASSACHUSETTS

Key to Legal Citation
Mass. Gen. Laws Ann. ch____, §____ (West)
(Ch____-§____)
(21-1)

1. WATER

The newly created Department of Environmental Quality Engineering (DEQE) has responsibility for the water pollution control program (21-1). Within the DEQE there is a Water Resources Commission (WRC), which controls the Division of Water Resources (DWR) (21-8). The Commissioner of Agriculture is a member of the WRC (21-8). Pollutant is defined to include any agricultural waste which is discharged, drained or otherwise introduced into any treatment works or waters of the state (21-26A). Agricultural wastes, by regulation, are included within the definitions of both "pollutants" and "waste water". All parties who discharge into state waters must obtain a state permit (21-43). Discharges without a permit are illegal (21-44). The DEQE utilizes the EPA guidelines on feedlots. The WRC may enact special regulations dealing with discharges into scenic or recreational rivers (21-17B). There is a fine attached to the depositing of a substance that injures or obstructs navigation (102-17). The Fish and Game Commissioner may recommend to the WRC that discharges be regulated or prohibited in order to protect inland water fisheries (131-41). Any discharge which directly or indirectly injures or kills fish is prohibited (131-42). The Department of Public Health may issue such orders regarding water pollution as it deems necessary to protect waters used as a domestic drinking supply (111-160). A city or town, after a public hearing, may petition the Department of Public Health when an activity involving manure, excrement, garbage or sewage is polluting or tending to pollute waters used for drinking purposes. The Department may not, however, prohibit the cultivation and use of the soil in the ordinary methods of agriculture if no human excrement is used thereon (111-162). The willful defilement of drinking water supplies is a public offense (111-171).

ADDRESS: Department of Environment Quality Engineering
600 Washington Street
Boston, Massachusetts 02114
617/727-2692

2. SOLID WASTE

The DEQE is also responsible for implementing the state's solid waste disposal program (16-18). Solid waste is defined to include waste from agricultural operations but not to include sewage solids or other significant pollutants of water resources (16-18). The DEQE is given general authority to regulate the disposal of waste from all sources (16-19). The primary focus of the statutes and regulations appears to be the controlling of operation and location of sanitary landfills rather than of waste problems of the agricultural operation. Local boards of health may regulate the removal, transportation and disposal of garbage and offal (111-31B).

ADDRESS: Department of Environmental Quality Engineering
Bureau of Land Waste Management
100 Cambridge Street
Boston, Massachusetts 02114
617/727-4293

3. AIR

There appears to be a dual system of regulation of air pollution at the state level: one by the Department of Public Health (DPH) and the other by the DEQE (111-2). The DEQE has assumed primary responsibility for the administration of the air pollution control program (111-142O). Air pollutants are defined to include odor (111-2B). The DEQE may adopt regulations dealing with atmospheric pollution (11-142A). By regulation, all emissions of air contaminants causing air pollution are prohibited. No person, including agricultural operators, may permit emissions which cause or contribute to air pollution by allowing odors or fugitive dust to escape. This regulation is enforceable by local police, fire departments, local boards of health, or building inspectors. Local and metropolitan air pollution control districts may also be created (111-142C-D). Local boards of health also have air pollution jurisdiction, including odor abatement powers (111-31C).

ADDRESS: Department of Environmental Quality Engineering
Bureau of Air Use Management
600 Washington Street
Boston, Massachusetts 02111
617/727-5194

4. COMMERCIAL FEED AND FERTILIZER

All commercial feeds except those exempted by the Commissioner of Agriculture must be registered with the Commissioner's office (128-51-52). Commerical fertilizer is defined to exclude unmanipulated animal manures (128-64). All manufacturers or distributors of fertilizers must be licensed (128-66).

5. AGRICULTURE

Mink ranches and mink products are deemed to be agricultural and are under the supervision of the Commissioner of Agriculture (128-8B). Within the Department, the Division of Dairying and Animal Husbandry must report to the Director of Animal Health all cases in which any barn, stable or other enclosure where cattle, ruminants or swine are kept is in an unsanitary condition (128-13). Garbage may not be fed to animals without obtaining a permit from the Director of Animal Health (129-14B). It is a criminal offense to knowingly feed garbage, refuse or offal to a milch cow. It is also illegal to feed offal collected by a city with more than 30,000 people to any animal other than a hog (270-9). The Department licenses and inspects all livestock or poultry slaughterhouses (94-119). Within the Department, there is an advisory Board of Food and Agriculture consisting of at least four farmers (20-1).

6. NUISANCE

The state DPH is the major agency responsible for nuisance-type activities (111-5). Departmental investigators must report to the Director of Animal Health all barns, stables or other enclosures which are not kept in a sanitary condition (111-16). Boards of health in any city or town, provided they hold a public hearing, may regulate the location of noisome trades, including those that are attended by injurious odors (111-143). The DEQE may act as an appeal board from a local determination (111-143). In a recent case, a dairy farm was held to be a nuisance and barred from continuing operations. All slaughterhouses and other offensive installations, before they may locate in a city of more than 5,000 population, must obtain the approval of the city council and mayor (111-151). Local boards of health have the power to license stables and regulate their location in cities of over 5,000 (111-155). Local boards of health have both inspection and regulation power as to nuisance (111-122). The owner of a nuisance must abate within 24 hours or face a fine (111-123). If the owner refuses to abate, the local board may abate (111-125). Private suits to enjoin nuisance are specifically provided for (111-134). The nuisance owner is obligated to pay court costs plus abatement costs if a plaintiff prevails in a legal action to abate nuisance (243-1).

7. SOIL AND WATER CONSERVATION

Within the DEQE, there is a Committee of Conservation of Soil, Water and Related Resources (21-19). It has mostly advisory powers (21-20). It does create the local conservation districts (21-22). These local districts do not have land use powers (21-24).

8. LAND USE

Cities and towns have the authority to zone (40A-1). No zoning ordinance may prohibit, unreasonably regulate, or require a permit for agricultural uses of the land, except that such activities may be limited to parcels of five acres or more in areas not zoned for agriculture (40A-3). Ordinances may not prohibit or unreasonably regulate the expansion of existing agricultural structures (40A-3). The Department of Natural Resources exercises stringent land use controls in order to protect the wetlands of the state (130-105). Regional planning is authorized to deal with zoning changes in the municipal fringes (40B-4A). Cities with populations over 10,000 must have a planning board (41-81A). Massachusetts utilizes a preferential assessment system for land deemed to be in agricultural use, including the raising of animals (61A-1).

9. MISCELLANEOUS

The Attorney General's office has a division of environmental protection (12-11D). It receives public complaints about damage to the environment and may investigate the alleged pollution and seek injunctive relief against the damaging activity without having to go through the administrative system (12-11E). Private actions to abate pollution are also possible if the citizen gives written notice about the alleged damaging acts to the regulatory agency responsible and if the agency chooses to do nothing about it (214-7A). No property used for agricultural purposes may be condemned by a public body unless there is no non-agricultural land available (79-5B).

Massachusetts has not been authorized to administer the National Pollutant Discharge Elimination System.

MICHIGAN

Key to Legal Citation
Mich. Comp. Laws §____
(§____)
(3.521)

1. WATER

The Department of Natural Resources (DNR), Water Quality Division and the Water Resources Commission (WRC) are the agencies responsible for implementing the state's water pollution control program (3.521, 3.525). The membership of the WRC is specified by statute and includes the state Commissioner of Agriculture (3.521). The WRC is given the authority to set water quality and effluent standards (3.525). It is unlawful for any person to discharge any substance that is injurious to the public health (3.526). All persons who discharge wastewater must file an annual report with the WRC (3.526). A concentrated animal feeding operation is declared to be a point source by the WRC regulations (Reg. 323.2104). Agricultural wastes are defined to be a "waste" (Reg. 323.2104). "Wastewater discharge" excludes runoff from agricultural operations. All dischargers must get an NPDES or state permit (Reg. 323.2106). WRC has enacted no specific regulations dealing with feedlots.

ADDRESS: Department of Natural Resources
Water Resources Commission
Stevens T. Mason Bldg.
Lansing, Michigan 48926
517/373-1947

2. SOLID WASTES

The Resource Recovery Division (RRD) of the DNR is responsible for the statewide program of solid waste management [13.27(4), 35.292]. The RRD is required to prepare a statewide solid waste management plan and to recommend approval of waste management projects financed by the DNR [13.27(8)]. "Refuse" is defined to include solid wastes (325.291). No person may dispose of any refuse except at a disposal area licensed by the DNR (325.292). The regulations are intended to cover only off-site disposal of refuse (Reg. 325.2702). All methods of refuse disposal must be approved by the DNR (Reg. 325.2735). The DNR has delegated the responsibility of regulating feedlots to the Animal Health Division of the State Department of Agriculture.

ADDRESS: Department of Natural Resources
90C Southland Street
Lansing, Michigan 48914
517/373-6620

3. AIR POLLUTION

The DNR, Air Quality Division and the Air Pollution Control Commission (APCC) are the agencies responsible for implementing the state's air pollution control program (336.13, Exec. Orders 1973-2, 1973-2a). The APCC is the permit issuing agency (336.15). Air pollution is specifically defined to exclude the "usual and ordinary animal odors associated with agricultural pursuits and located in a zoned agricultural area if the numbers of animals and methods of operation are in keeping with normal and traditional animal husbandry practices for the area" (336.12). Some feedlots may not qualify for the exemption and, therefore, would be subject to the general nuisance definition of air pollution contained in the regulations (Reg. 336.46). There are no fugitive dust or odor regulations.

ADDRESS: Department of Natural Resources
Air Quality Division
Stevens T. Mason Bldg.
Lansing, Michigan 48926
517/373-8630

4. COMMERCIAL FEED AND FERTILIZER

The commercial feed law is enforced by the Department of Agriculture [12. 503(23)]. The seller must be licensed by the state, and the feed must not be adulterated as defined by the statute [12.503(28)]. Fertilizers, also, must be registered with the Department, but unmanipulated animal manures are exempted from the definition of fertilizer [12.160(2)].

5. AGRICULTURE

The Animal Health Division of the Department of Agriculture seems to be the primary regulatory body with which the feedlot operator must deal. All feedlots must be registered with the Department of Agriculture (12.392). They must be maintained in a sanitary condition (12.390). The regulations require a permit application and an inspection (Reg. 285.152.2). In addition to the regulations, the Michigan Department of Agriculture uses Soil Conservation Service minimum guidelines for livestock waste control systems. While these technical guides are recommendations, they do establish minimum performance standards which must be met by any alternative proposed by the operator. The guidelines are lengthy and detailed; requirements vary from region to region within Michigan. They deal with the overall agricultural waste management system, and include such items as agricultural waste storage facilities, debris basins, dikes, disposal lagoons, grade stabilization ponds, and irrigation systems. The guidelines also deal with recommended land application rates, the general standard being about 25-30 tons of animal wastes per acre per year. Unless odor is a limiting factor surface disposal is recommended where there is no possibility of flushing to an open stream. Land disposal with surface injection of liquid manure is recommended as a means of eliminating odors. Stacking of manure with subsequent distribution is not considered to be a viable method because of leaching and runoff problems.

The Agriculture Department has additional responsibilities in feedlot regulation. All livestock dealers must be licensed by the state [12.481(1)]. All trucks and yards must be maintained in a sanitary condition [12.481(6)]. Garbage may not be fed to swine unless the feeder has a license from the state [12-483(2)]. The general area must be kept in a sanitary manner to avoid excessive vectors and garbage feeding areas must be readily cleanable and impervious (Reg. 325.2732). The Department requires that dairy barns or stables must be well-lighted and ventilated and free from the accumulation of animal feces or excreta (12.671). Milking barns on dairy farms must not be available to farm animals other than milk cows (12.672). Manure must be removed and stored in such a manner as to avoid breeding of flies or access by cows. Pen-type barns must be well drained and segregated for use by dairy cattle only (12-672).

ADDRESS: Department of Agriculture
Animal Health Division
Lewis Cass Building
Lansing, Michigan 48913
517/373-1050

6. NUISANCE

County boards of health have the primary responsibility to abate nuisance (14.166). Within municipalities this responsibility is given to city boards of health (5.1338). City councils have the authority to abate nuisance (5. 1285). All unwholesome premises within city limits may be regulated (5.1333).

7. SOIL AND WATER CONSERVATION

There is a State Soil Conservation Committee with advisory powers (13. 1784). Local soil conservation districts do not possess land use powers (13. 1788). Michigan has an extensive soil erosion and sedimentation control regulating system [13.1820(4)]. Persons engaged in an "earth change," except for those engaged in agricultural practices, must have entered into a formal agreement with a soil conservation district [13.1820(16)].

8. LAND USE

Both counties and cities have the authority to zone and plan. Agricultural uses are specifically placed within the county zoning authority [5.2961 (1)]. The DNR must approve any county zoning ordinance before it can take effect [5.2961(11)]. Rural townships are also given the power to zone agricultural land [5.2963(1)]. Finally, the DNR may zone, including agricultural uses, alongside designated "natural rivers". Local governments may zone to protect environmentally sensitive shorelands (13.1837-39). The DNR has prepared a document designed to guide local governments in using zoning for the purpose of retaining essential agricultural lands. The Farmland and Open Space Preservation Act of 1974 allows preferential tax treatment for agricultural land (26.1287). A transfer of development rights may be made and that part of the value of the land becomes exempt from assessment [26.1287(7)]. There is also a credit against state income tax value [26.1287(10)]. Upon relinquishing the transfer of development rights, there arises a lien for the amount of the tax credits.

9. MISCELLANEOUS

Under the Michigan Environmental Protection Act of 1970 [14.528(201)], any citizen, corporation or governmental body may sue any other citizen in the state courts for protection of the environment [14.528(202)]. One unreported case in 1971 against a feedlot operator alleging an odor problem was decided in favor of the feedlot operator on the grounds that the state had not developed odor regulations for agricultural operations.

Michigan was granted authority to administer the NPDES on October 17, 1973. The administering agency is the DNR.

MINNESOTA

Key to Legal Citation
Minn. Stat. Ann. §____(West)
(§____)
(115.01)

1. WATER

The Minnesota Pollution Control Agency (PCA) is the agency responsible for implementing the state's water pollution control program (115.03). Wastes are defined to include agricultural wastes (115.01). The definition of sewage would also seem to include agricultural wastes (115.01). Point sources and disposal systems are also defined to include the feedlot operation (115.01). The PCA has the authority to require permits for all point sources. It is also authorized to "examine and copy any books, papers, records or memoranda pertaining to the installation, maintenance or operation or discharge, including, but not limited to, monitoring data, of disposal systems or other point sources, ..." (115.04). The PCA may prohibit the discharge of any sewage or other wastes as well as prohibiting the storage of any liquid or solid substance that is likely to cause water pollution (115.03). No person may operate a disposal system without obtaining a state permit. The PCA has prepared guidelines for recommended design criteria for disposal of effluent on land. The maximum allowable slope is 2% for land application. Land disposal is not recommended where the depth to groundwater is less than 10 feet. There are regional sanitary districts which have water pollution control authority as well (115.18). These regional agencies may not enact ordinances conflicting with the PCA's regulatory scheme but may enact more stringent regulations (115.37). The districts may construct disposal systems or require individuals to build them (115.26). They may regulate and control the construction of facilities for the disposal of animal excreta insofar as is necessary to prevent nuisance or pollution (115.28). The regional districts may create advisory boards at their pleasure (115.31).

ADDRESS: Pollution Control Agency
Division of Water Quality
1935 West County Road B2
Roseville, Minnesota 55113
612/296-7202

2. SOLID WASTE

The solid waste management program is operated by the PCA (116.07). Solid waste is defined to include wastes from agricultural operations but not to include animal waste used as fertilizer (116.06). The PCA is authorized to issue permits for any operation that handles solid waste (116.07). Variances may be granted; a feedlot operator who is seeking a variance is exempted from the public hearing requirement that usually attaches to the granting of a variance (116.07). The PCA may delegate the authority to issue permits for feedlots to the county board of supervisors which then becomes the primary agency responsible for the processing of feedlot permits (116.07). The PCA was also given the duty of proposing feedlot regulations by January 1, 1974 (116.07). All putrescible solid waste must be so stored as to prevent excessive fly breeding. The PCA regulates disposal sites for all solid wastes, although the thrust of the regulations emphasizes the municipal solid waste problem. In the Minneapolis-St. Paul metropolitan area, there is a Metropolitan Council which is given regional authority to deal with the solid waste disposal problem, including the problem of solid wastes from agricultural operations (473.121). The Metropolitan Council was given the duty of preparing a regional solid waste comprehensive plan (473.149). A specialized Metropolitan Waste Control Commission was created as well; it deals more with the municipal solid waste disposal problem than with the agricultural one. It could be the 208 agency, however, for the region (473.504). Counties also have the authority to develop solid waste management programs, but again the main thrust of the program deals with the municipal rather than agricultural solid waste problem (400.03).

ADDRESS: Pollution Control Agency
Division of Water Quality
1935 West County Road B2
Roseville, Minnesota 55113
612/296-7296

3. AIR

The air pollution control program is also operated by the PCA (116.02). Air contaminants are defined to include dust and gases; there is no explicit mention of odors (116.06). The PCA issues permits for sources of air pollution. An exception is made for feedlots seeking variances; in these cases counties may be authorized by the PCA to be the processing and approval agency (116.06). The PCA has enacted odor control rules which provide that no person may permit the emission of odorous air pollution in excess of the given standards. No odor emission point which is less than 50 feet above the ground surface may emit more than 25 odor concentration units (OCU). An OCU is defined to be the number of standard cubic meters of odor-free air needed to dilute each cubic meter of contaminated air so that at least 50% of the test panel does not detect any odor. Emissions beyond the property line are limited to 1 OCU in a residential or recreational zone, 2 OCU's in light industrial zones and 4 OCU's in all other districts. The odor of growing vegetation is not considered to be odorous air pollution. The use of fertilizer is odorous air pollution. Compliance with the provisions of this regulation does not exempt the landowner from a public or private nuisance action. There are no fugitive dust regulations.

ADDRESS: Pollution Control Agency
Division of Air Quality
1935 West County Road B2
Roseville, Minnesota 55113
612/296-7331

4. COMMERCIAL FEED AND FERTILIZER

Fertilizers, which, by definition, do not include unmanipulated animal manures, are regulated by the Department of Agriculture (17.713). All other fertilizers and soil conditioners must be registered with the Department, and the producer of the fertilizer must be licensed (17.714-715). Commercial feeds are also regulated by the Department (25.33). All feeds must be registered before use (25.34). The Department has adopted the AAFCO uniform standards for the refeeding of poultry wastes.

5. AGRICULTURE

The Commissioner of Agriculture is authorized to formulate plans for the inspection of poultry operations (29.021). The State Livestock Sanitary Board has exclusive jurisdiction over all matters relating to poultry diseases and their eradication (29.051). The State Livestock Sanitary Board is also responsible for the overall health of livestock in the state (35.02). The Board requires a license before garbage, including animal waste materials, may be fed to livestock (35.75). The Board has the power to inspect all premises where feeding of animals takes place (35.78). The Department may inspect all dairy barns for unsanitary conditions (32.103). Local governments have concurrent inspection authority unless specifically denied by state laws or regulations (32.104).

6. NUISANCE

The State Board of Health establishes and enforces health standards and identifies environmental health hazards (144.05). It may require permits and licenses for any activity that is associated with the disposal of sewage, pollution of streams or accumulation of unwholesome matter (144.12). Public nuisance is broadly defined by statute (609.74). Any person is given the right to file a civil action for damages, injunctive relief or both to abate a nuisance (561.01). State or county boards of health also have the power to abate nuisance, including premises where noisome odors may arise (145.17). Cities are also given the authority to abate nuisance arising within their boundaries (412.221 and 429.021).

7. SOIL AND WATER CONSERVATION DISTRICTS

There is a State Soil and Water Conservation Commission within the Department of Natural Resources (DNR) with advisory powers over the local districts (40.03). Local districts may develop comprehensive plans for the conservation of soil and water resources; may conduct demonstration projects; and may carry out constructive, preventive and control measures within the district (40.07). They do not possess land use authority.

8. LAND USE

The DNR is empowered to adopt local flood plain regulations if local governments do not enact their own flood plain management ordinances (104.04). Towns which have a population of over 1,200 people and are within 20 miles of a larger city may adopt a zoning ordinance regulating agricultural operations (368.56). Planning is a predicate to all city zoning (394.24). Zoning may be employed to establish districts for the purposes of regulating use of land or water; agricultural uses are specifically included (394.25). Counties also have the authority to carry on planning and zoning (394.21). Counties are empowered to implement a comprehensive plan to eliminate water pollution in order to protect and improve the quality of water in lakes (378.31). Counties are also authorized to create lake improvement districts with taxing power in order to effectuate the plans (378.42). The Minnesota Environmental Quality Council (EQC) is authorized to review all development in so-called critical areas (116G.02). The EQC is made up of state officials, including the Commissioner of Agriculture (116C.03). In areas of critical concern, as defined by the EQC, the local governments may issue development permits only after meeting the minimum EQC guidelines (116G.12). Minnesota allowed through December 31, 1976 a 10% tax credit on state income tax for the cost of pollution control equipment (290.06). In 1974, feedlot operators had purchased $5.5 million in control equipment, giving them a credit of nearly $550,000. Agricultural land may be assessed at agricultural use value only if it meets the minimum qualifications (273.111). Upon sale for non-agricultural use, the landowner must pay the full amount of taxes owing as if the property had been assessed at full market value (273.111).

9. MISCELLANEOUS

Minnesota allows all individuals to seek legal relief for environmental injuries (116B.01). However, there is an exemption for family farms, family farm corporations and bona fide farmer corporations (116B.02). Pollution for which civil action may be filed is so defined as to exclude injury caused solely by the presence of odors in the air (116.02). State Environmental Impact Statements (EIS's) are required for all state activities, including the issuance of water pollution, air pollution and solid waste permits (116D. 04). In addition, any development in the shorelands region must obtain a permit and comply with the EIS requirements (116D.04).

Minnesota was granted authority to administer the NPDES on June 30, 1974. The administering agency is the PCA.

MISSISSIPPI

Key to Legal Citation
Miss. Code Ann §____
(§____)
(49-17-3)

1. WATER

Under the Mississippi Air and Water Pollution Control Act (49-17-3 et. seq.) the Air and Water Pollution Control Commission (AWPCC) is the agency responsible for implementing the state's water pollution control program (49-17-17). The Commissioner of Agriculture or his designated representative is a member of the AWPCC (49-17-5). The AWPCC has authority to promulgate rules and regulations dealing with water pollution and solid waste problems (49-17-17). Agricultural wastes fall under the comprehensive definition of wastes (49-17-5). Treatment works and disposal systems are merely facilities or premises used to dispose of, treat or store wastes (49-17-5). The AWPCC is given authority to require preconstruction review of plans and specifications for new disposal systems (49-17-17). A permit board issues the operating permit (49-17-29). The AWPCC has, under the above statutory authority, developed a four-step regulatory program for 95% of the state's feeders: 1) submission by the applicant of a treatment system design worksheet through the SCS; 2) review of the design with comments by the agency; 3) review and approval of any discharge from the facility by the Permit Board; and 4) issuance of a State Operating Permit with conditions if necessary.

ADDRESS: Air and Water Pollution Control Commission
Division of Water Pollution Control
P. O. Box 827
Robert E. Lee Building
Jackson, Mississippi 39205
601/354-7661

2. SOLID WASTE

The Solid Wastes Disposal Act of 1974 (Miss. Stat. Chap. 573) gives the State Board of Health authority to regulate solid waste disposal. Local health officials are given similar authority upon delegation from the state. However, livestock wastes are specifically excluded from the definition of solid wastes. Although the definition of garbage could be stretched to include feedlot wastes, the Board of Health does not regulate feedlot operations except for abatement actions against health-endangering nuisance-type situations. There are apparently no large feedlots in the state and only one citizen complaint has ever been received. The Board of Health has expected problems from domestic fish farming operations, but they had received no citizen complaints through 1976. The Board has enacted a general refuse regulation in which agricultural wastes are not specifically excluded from the definition of refuse. No landowner may accumulate refuse so as to cause an excessive amount of vectors. General offal must be cremated, buried or rendered.

ADDRESS: Board of Health
Division of Solid Waste Management
P. O. Box 1700
Jackson, Mississippi 39205
601/354-6616

3. AIR

The AWPCC is also the agency responsible for implementing the state's air pollution control program (49-17-3). Dust, but not odor, is listed as an air contaminant (49-17-5). The regulations prohibit the emission of any particles that are injurious to the public health. No person may allow the storage or handling of any material in a manner which causes increasing amounts of fugitive dust. Odor and dust arising from buildings or equipment are also prohibited if they would cause a nuisance.

ADDRESS: Air and Water Pollution Control Commission
Division of Air Pollution Control
P. O. Box 827
Robert E. Lee Building
Jackson, Mississippi 39205
601/354-2550

4. COMMERCIAL FEED AND FERTILIZER

All commercial fertilizers, which are so defined as to exclude unmanipulated animal manure, must be registered with the Department of Agriculture and Commerce (75-47-5,7). All commercial feeds that are manufactured or distributed in the state must be registered with the Department. In 1975, regulations were proposed which would have allowed the use of animal wastes as feed. While these regulations were never adopted by the Department a permit has been granted to one operator of a prototype plant preparing caged layer poultry waste. The program is under the aegis of a Nutritional Advisory Committee at Mississippi State University.

5. AGRICULTURE

Mississippi has recognized domestic fish farming as an important agricultural activity within the state. It has allowed the formation of nonprofit cooperative associations and marketing associations to engage in fish farming activities (79-21-9, 79-21-57). The Commissioner of Agriculture and Commerce is given the duty of promulgating regulations dealing with domestic fish farming (69-7-501). It is unlawful to feed garbage to swine unless the swine are to be used solely for household consumption (69-11-5). The State Board of Health has the responsibility of inspecting dairies (41-3-15).

6. NUISANCE

The State Board of Health and local boards are delegated general authority to abate nuisance caused by unsanitary conditions (41-3-15). Local governments are also given the power to make regulations to prevent, remove and abate nuisance (21-19-1). Hogpens, slaughterhouses, stockyards, stables and other places where offensive matter can be accumulated are specifically singled out for local control (21-19-1). Water Protection Districts may abate nuisance through their power to enact regulations (19-5-173).

7. SOIL AND WATER CONSERVATION

There is a State Soil and Water Conservation Committee with advisory powers (69-27-13). Local soil conservation districts may exercise land use controls where so authorized by a popular referendum (69-27-37). These controls are enforceable by an action for damages where work has been ordered but not completed (69-27-39).

8. LAND USE

Both cities and counties have the power to zone (17-1-3). Counties, however, may not require permits with reference to land or buildings used for agricultural purposes if the land is in an unincorporated area (17-1-3). Local building codes also are held not to be applicable to farm buildings in unincorporated areas. Mississippi does not have a preferential tax assessment scheme for agricultural lands.

Mississippi was authorized to administer the NPDES on May 1, 1974. The AWPCC is the administering agency.

MISSOURI

Key to Legal Citation
Mo. Ann. Stat. §____ (Vernon)
(§____)
(204.026)

1. WATER

The Clean Water Commission (CWC), a subdivision of the Department of Natural Resources (DNR), is the agency responsible for implementing the state's water pollution control program (204.026). Water contaminants are broadly defined and would include agricultural pollutants (204.016). In the regulations, pollutant is defined to specifically include agricultural waste discharged into the water (Reg. CWC R-4). The CWC, in cooperation with the SCS and the Extension Service, utilizes a letter-of-approval system for all feedlots within the state, regardless of size. All feedlots must be so designed that there is no planned discharge into the waters. There are both operating and construction letters of approval. Approval usually follows the use of one of the techniques recommended by the SCS or the Extension Service for controlling discharges. Missouri recommends land disposal of the wastes on adjacent farmland, utilizing techniques that diminish the vector problem. If there were to be a discharge, the operator would be required to meet the effluent limitations established by the CWC. The pollution of any water by the placement of offal or other filth therein is a criminal offense punishable by a fine of not less than $25 nor more than $500 (564.010). The Fish and Game laws also make contamination of streams so as to cause fish kills a misdemeanor (252.210). Cities have the authority to enact regulations to prevent contamination of their water supply.

ADDRESS: Department of Natural Resources
Clean Water Commission
1014 Madison Street
P. O. Box 154
Jefferson City, Missouri 65101
314/751-3241

2. SOLID WASTE

The DNR is also the agency responsible for implementing the state's solid waste management program (260.200). Statutes define solid waste so as to include waste from agricultural operations (260.200). Disposal of solid waste or its processing without a state permit is prohibited (260.210). The DNR regulations provide that permits are not required for the use of solid waste in normal farming operations provided that a public nuisance is not created. Counties may also license dumping grounds; again, an exemption is made for dumping garbage or refuse on one's own land so long as one does not create a nuisance (64.480). There is also a special state bonding authority created to finance solid waste disposal operations, with the statute specifically including agricultural wastes within the definition of solid waste (260.005).

ADDRESS: Department of Natural Resources
Solid Waste Management Program
2010 Missouri Blvd.
Jefferson City, Missouri 65101
314/751-3241

3. AIR

The Air Conservation Commission (ACC) and the DNR are responsible for implementing the state's air pollution control program (203.040). The ACC is the rule-making agency (203.040). The statute, in defining air contaminant and air pollution, does not mention odors (203.020). The ACC has enacted a regulation, applicable in most Missouri counties, which restricts the emission of odors so as not to exceed 7 dilutions on a scentometer, conducted in two separate tests within a 1-hour period (Reg. S-IX). The regulation is considered to be a nuisance-type regulation and is enforced only upon the receipt of citizen complaints. The open burning of refuse, which is so defined as to include that from agricultural operations, is proscribed. There is also a property-line fugitive dust regulation which prohibits the emission of particulate matter with a concentration in excess of 80 micrograms/cubic meter on a 6-month geometric mean or 200 micrograms/cubic meter on a 2-hour arithmetic mean.

ADDRESS: Department of Natural Resources
Air Quality Program
2010 Missouri Blvd.
P. O. Box 1368
Jefferson City, Missouri 65101
314/751-3252

4. COMMERCIAL FEED AND FERTILIZER

All commercial feed must be registered with the Department of Agriculture; its Director may, however, exempt certain types of feed (if unmixed and deemed to be non-adulterated) from the registration requirement (266.160, 266.165). Fertilizers are very broadly defined to include any substance containing an element used for promoting plant growth (266.291). It is unlawful to offer for sale, sell or use any fertilizer without obtaining a permit from the Department of Agriculture (266.301). Soil conditioners, which are defined to be any substance added to the soil other than a fertilizer, may not be sold if they might be injurious to the soil (266.361).

5. AGRICULTURE

Garbage, which is defined to include "every refuse accumulation of animal matter," may not be fed to swine unless it is treated by boiling (266.420). A permit is required from the Department for feeding garbage (266.430). The sale or purchase of garbage-fed swine is prohibited (266.440). The state veterinarian may promulgate and enforce sanitary rules and regulations in livestock yards, pens or vehicles (277.100). Commercial feeders must operate their premises under a constant state of quarantine and may not have breeder animals on the premises (267.472). Surface drainage to adjacent premises must be controlled (267.472). A feeder must obtain a permit from the Department before he may buy non-bred female cattle (267.472). The state veterinarian may discontinue the practice of licensing quarantined commercial feedlots if their existence conflicts with other disease eradication requirements (267.470). Both the State Board of Health and local governments may inspect and regulate dairies (196.944). It is unlawful to operate a dairy operation in an unclean manner (196.585).

6. NUISANCE

Any public nuisance may be abated by court action, even though the use is not specifically listed in the statute as being a nuisance (564.080). The operation of a slaughterhouse, if it be permitted to remain unclean, is a public nuisance and may be abated (564.030). Cities have the power to abate nuisance by legislative action and to impose the cost of abatement on the property owner (71.780). Cities may also inspect all living animals, within their jurisdiction, that are intended for human food (71.730). The herding of livestock onto levees is unlawful (245.525). Smaller cities may by ordinance regulate or abate stockyards, pigpens, cow stables, dairies and the like (77.560, 79.370).

7. SOIL AND WATER CONSERVATION DISTRICTS

The State Soil and Water Districts Commission has largely advisory powers (278.080). Local soil and water conservation districts do not have land use powers (278.120).

8. PLANNING AND ZONING

Counties may plan and zone (64.010). Smaller counties may, however, only zone and plan after the voters of the county have given them that power (64.510). There is no exemption for agricultural uses (64.850, 64.860). All cities may zone and plan (89.020). Certain medium-size cities may zone extraterritorially up to two miles (89.144). Certain other cities may also be given this two-mile extraterritorial jurisdiction to zone with the approval of the county court (89.145). In 1975 Missouri adopted a preferential tax assessment scheme for agricultural use (137.017-.026). Land used for agricultural purposes for the preceding 5 years may be assessed at agricultural use value (137.017). There is no penalty if the land use shifts to non-agricultural, except for the future loss of the preferential assessment (187.021).

Missouri was authorized to administer the NPDES on October 30, 1974. The CWC is the administering agency.

MONTANA

Key to Legal Citation
Mont. Rev. Codes Ann. §____
(§____)
(69-4802)

1. WATER

The Department of Health and Environmental Sciences (DHES), Water Quality Bureau is the agency responsible for implementing the state's water pollution control program (69-4802). Agricultural wastes would appear to fall under both the definition of sewage and that of other wastes (69-4802). Montana regulated feedlot runoff prior to the NPDES program through a state permit system; with the advent of the NPDES system, the Department established the cutoff point for permits at the EPA level. Under its rules and regulations, small animal confinement facilities, meaning those that are not required to obtain an NPDES permit by EPA regulation, still must obtain a state permit if they are point sources [Rule 16-2.14(10), (2)]. All operators of confined livestock feeding facilities which might discharge wastewater or manure to a state water must apply to the DHES for a permit. Small operators are required to submit construction plans and specifications.

The guidelines for control of wastes from existing confined animal feeding operations are not rules of law but are rather suggested ways of getting approval under the state permit system. The state has a basic policy of nondegradation so that even though a discharge might not cause a violation of the water quality standards it would still be the policy to require the best practical treatment for removal of BOD. Reasonable measures must be taken to remove suspended sediment from the effluent as well. If surface runoff is not contained on property under the control of the feedlot operator, a retention structure with capacity to hold the 10-year 24-hour storm is suggested. Separate requirements for partial or total confinement operations are also suggested. Requirements are also placed on the water pollution aspects of locating and operating a new or expanded animal confinement facility. Sealing of lagoons in permeable soils is recommended. The guidelines suggest investigation of local zoning regulations as well as of the Montana Flood Plain Act. Locations should not encroach on possible recreational, residential or urban areas. All state lakes must be free of objectionable sludge deposits and of objectionable odor or color from agricultural practices. A permit form for confined animal feeding operations has been developed.

ADDRESS: Department of Health & Environmental Sciences
Water Quality Bureau
Capitol Station
Helena, Montana 59601
406/449-2406

2. SOLID WASTE

The DHES, Solid Waste Management Bureau is the agency responsible for implementing the state's solid waste management program (69-4002). Refuse is so defined as to include all putrescible wastes (69-4002). Dumping of wastes in an unlicensed area is prohibited (69-4003). Dumping of wastes on one's own property is allowed, provided that nuisance conditions are not created (69-4008). The guidelines for both existing and new feedlots also deal with the problem of solid waste disposal. Feedlot surfaces should be sloped to avoid accumulation of surface water and must be cleaned as frequently as necessary to maintain reasonable standards of sanitation. Lagoons must be so constructed as to provide a reasonable means for removal of the solids. Manure removed from the feedlot must be disposed of on agricultural land where it will not be returned to a stream. Wastes should not be spread upon frozen soils unless there is no possibility of runoff from the area. If manure removal is infeasible, the manure must be stockpiled on the premises and any runoff must be contained. Waste disposal areas must be licensed and be located on land under proper conservation treatment. The disposal area should be twice the drainage area of the feedlot. Groundwater pollution should be avoided. For new operations, a waste disposal permit must be obtained after the operator has submitted his plans and specifications for review by the Department. The general solid waste regulations classify manure as a class II waste, allowing disposal at a class I or II waste disposal site. All sites must utilize practices that control flies, insects and rodents.

ADDRESS: Department of Health & Environmental Sciences
Solid Waste Management Bureau
1400 Eleventh Ave., Suite A
Helena, Montana 59601
406/449-2821

3. AIR

The DHES, Air Quality Bureau regulates the state's air pollution control program (69-3906). There is also a Board of Health and Environmental Sciences (BHES) which acts as a rule-making body (69-3909). The Air Pollution Advisory Council advises both the DHES and BHES on any matter relating to air pollution (69-3908). The definitions of air contaminant and air pollution specifically include odorous substances (69-3909.1). The guidelines for new feedlots specifically recommend that potential odor problems be considered in site selection. As a rule of thumb, feedlots should be located at least two miles from residences and 5-6 miles from municipalities. Odor control through minimizing the handling of the manure and by keeping it dry is recommended. Land application should be accomplished when atmospheric conditions are best suited for minimal air pollution effects. The regulations prohibit the emission of odors which would create a public nuisance beyond one's property line. Odor producing materials should be stored and handled so as not to create a public nuisance. There are no fugitive dust regulations.

ADDRESS: Department of Health & Environmental Sciences
Air Quality Bureau
Cogswell Building
Helena, Montana 59601
406/449-3454

4. COMMERCIAL FEED AND FERTILIZER

The Department of Agriculture regulates the sale and use of commercial feeds and fertilizers (3-107). Permits are required for the distribution of commercial feeds; these are defined broadly (3-2025-6). Adulterated feeds, defined to include any deleterious substance which may render them injurious to health, may not be distributed (3-2030). Fertilizer material which includes any kind of processed animal wastes or by-products is also regulated by the Department of Agriculture (3-1714.2). The act regulates manipulated manures which have undergone some type of processing, including drying or grinding (3-1714.2). All fertilizers and soil amendments, except unmanipulated animal manures, must be registered and the distributor must obtain a license before they may be sold (3-1715.1).

5. AGRICULTURE

The Department of Livestock is given broad powers to administer laws dealing with dairies, livestock dealers, livestock protection and the feeding of garbage to animals (82A-1301.1). The Department has general supervisory powers over the sanitary conditions of livestock in the state (46-208). It also has power to promulgate sanitary rules for the poultry industry within the state (46-209). In addition, the Department regulates the feeding of garbage to swine and other animals. No person may feed garbage to swine without a license from the Department unless the individual feeds garbage to his own swine for household purposes (46-2602). Garbage is defined to include putrescible animal wastes (46-2601). The DHES licenses all dairies (46-232). The Department of Agriculture has the right of entry to inspect dairies for sanitary conditions (3-24-114). The Department also has a licensing procedure for livestock dealers; these are defined so as not to include farmers and ranchers who buy or sell livestock in the ordinary course of farming or ranching (46-2901).

6. NUISANCE

The DHES is given general responsibility to control nuisance (69-4110). It may also delegate that authority to local boards of health (69-4509). Polluting of water is specifically mentioned as a prohibited act (69-4905). Cities and towns also have nuisance abatement authority (11-935). Nuisance is broadly defined by statute (57-101). In one case, a chicken raising business was held not to be a public nuisance. A nuisance may be publicly or privately abated (93-6101, 94-8-107).

7. SOIL AND WATER CONSERVATION

The Department of Natural Resources and Conservation (DNRC) is the state agency that oversees the local districts' activities (76-105). Local conservation districts may adopt land use regulations upon popular vote of the electorate (76-109). Local districts may sue to enforce the validly-adopted land use regulations (76-110). The DNRC also administers the Natural Streambed and Land Preservation Act, designed to protect streams and adjacent lands (26-1511 et seq.).

8. LAND USE

Cities and towns have the authority to plan and zone within a 3-mile radius of their boundaries (11-2702). The guidelines for new feedlot operations specifically call to the attention of the operator the existence of local zoning ordinances to protect the feedlot operator from having a problem with nearby residences. Enabling authority exists for the creation of combined city-county planning boards (11-3824). A master plan developed by a joint board should include land use, land utilization and conservation elements dealing with water, soils and agricultural activities (11-3831). County zoning is also authorized (16-4701). In addition, joint city and county zoning is allowed (11-3830). However, no county zoning regulation may prevent the complete use, development or recovery of any agricultural resources by the landowner (16-4710). Montana provides for the assessment of agricultural lands at use value for agricultural purposes (84-401). The definition of agricultural uses would not seem to include the feedlot operation (84-4372). Upon retirement of the land from agricultural purposes, a "roll back" tax is levied to reimburse the taxing authority for the preferential assessment.

Montana was authorized to administer the NPDES on June 10, 1974. The DHES is the administrative agency.

NEBRASKA

Key to Legal Citation
Neb. Rev. Stat. §____
(§____)
(81-1503)

1. WATER

The Department of Environmental Control (DEC) is the agency responsible for implementing the state's water pollution control program (81-1503). There is, in addition, an Environmental Control Council (ECC) with advisory powers; it includes among its 16 members one representative from the agricultural processing industry and one from the livestock industry (81-1503). Within the DEC there is an Agricultural Pollution Control Division (APCD) primarily responsible for all aspects of feedlot control. The ECC is the rule-making body within the DEC and as such has been specifically authorized to adopt livestock waste control regulations considering all aspects of the livestock waste problem (81-1505). The ECC has, since 1972, adopted a rather complete set of regulations to deal with the livestock waste problem. Any new or modified feedlot must obtain a construction permit if it would create a nuisance, violate Nebraska Water Quality Standards, discharge into the waters of the state or otherwise violate the Nebraska Environmental Protection Act (Rule 2). Where there is a discharge, an NPDES permit is required in addition to the state construction permit (Rule 3). State permits are issued for housed units if they can provide storage capacity to retain all process wastewater for at least 120 days (Rule 16). Open lots must control water runoff from the 10-year 24-hour storm (Rule 15). No construction or operating permit may be issued if the facility is not in compliance with the local zoning ordinance (Rule 13). No livestock waste control facility may be located within 100 feet of any well used for domestic purposes, within 1,000 feet of any well used for a municipal water supply or in any area where it will contaminate groundwater (Rule 18). In addition, the regulations detail minimum standards for operating management of feedlots (Rule 20). If a feedlot meets the construction and operating standards, it is prima facie evidence that a nuisance does not exist (Rule 23). On-site inspection may be made upon the request of the feedlot operator to ascertain the need for a permit. Facility design must meet minimum state standards and plans must be submitted for prior approval to the DEC (Rule 7). Any operator may take advantage of the presumption against a finding of a nuisance provided under Rule 23 by obtaining a permit to operate even if not required to do so (Rule 10). The DEC cooperates with the Bureau of Dairies and Foods of the Department of Agriculture in appraising dairy waste control facilities (Rule 12). All waste control facilities must be so operated as to prevent water and land pollution (Rule 20). Foreign surface drainage shall be diverted and collected. Wastes should be disposed of at a rate guaranteeing the maintenance of the required minimum storage capacity. All waste solids must be stored in a manner that will not contribute to pollution (Rule 20). Disposal areas should be selected where the potential for surface or ground water pollution is minimal (Rule 20). An informal Nebraska Feedlot Pollution Control Advisory Committee was established in 1967 to help feedlot operators and government regulators develop a practical and effective livestock waste management program. The DEC and the Nebraska Extension Service have developed feedlot design guidelines for controlling wastes. Recommended answers to the waste management problem include debris basins and holding ponds, sewage retention structures, diversion mechanisms, grassed waterways and buffer strips, disposal lagoons, holding tanks and pits, oxidation ditches and septic tanks. Financial assistance for construction of livestock waste control facilities is available from the SCS under the Great Plains Conservation Program for the western 61 counties of the state. In addition, 5 of the 24 Natural Resource Districts (NRD's) also have cost-sharing programs for livestock operations.

ADDRESS: Department of Environmental Control
Agricultural Pollution Control Division
Box 94377
Lincoln, Nebraska 68509
402/471-2186

2. SOLID WASTE

The DEC, Solid Waste Pollution Control Division is the agency responsible for implementing the state's solid waste management program through its authority to control land pollution (81-1504). The DEC and the ECC may require a permit prior to the installation or operation of any activity that might result in land pollution; this includes the placement of refuse, garbage and rubbish in such quantities as to be harmful to the public health, safety or welfare (81-1502). All solid waste disposal areas must be approved by the Director of the DEC, but only after either county or city zoning approval has been given (81-1518). Even with state regulations, cities and counties may require their own systems for regulating solid waste disposal problems (81-1516). The DEC recommends the incorporation in soil of slurry manure to reduce nutrient loss, prevent possible runoff and eliminate odors. A rate of 10 tons/acre is a rule of thumb guideline for the annual application rate. A maximum of 25 tons/acre is suggested because of potential salt and nitrate buildup. Liquid manure may be applied to cropland by sprinkler or by gravity irrigation. Recommended application rates vary from 6 to 12 inches per growing season, depending on crop and soil involved. Care should be taken to select sites so as to avoid groundwater pollution. The ECC has promulgated general solid waste regulations which do not exempt agricultural operations. Licenses are required before solid wastes may be placed at a disposal site.

ADDRESS: Department of Environmental Control
Solid Waste Pollution Control Division
Box 94877
Lincoln, Nebraska 68509
402/471-2186

3. AIR

The DEC, Air Pollution Control Division and the ECC have regulatory authority over the air pollution control program. Although the definition of air pollution is broad enough to include odors, air contaminant is defined to include dust or gas but not odor (81-1502). The ECC requires the operator to drain waste runoff to a holding pond as soon as possible to insure that the lot surface remains aerobic. Where solids are separated from the liquid, adequate time for settling must be provided before draining the runoff water to a holding pond (Rule 20). The Extension Service recommends good management practices for manure and moisture to minimize feedlot-created odors. Reasonable measures are required of feedlot operators to prevent fugitive dust emissions in such quantities as to remain visible in the ambient air beyond the property line.

ADDRESS: Department of Environmental Control
Air Pollution Control Division
Box 94877
Lincoln, Nebraska 68509
402/471-2186

4. COMMERCIAL FEED AND FERTILIZER

The Department of Agriculture requires the registration of all fertilizers and soil conditioners before manufacturing or sale, but excludes unmanipulated animal and vegetable manures from the definitions of fertilizer and soil conditioner (81-2162.02). Commercial feeds, also regulated by the Agriculture Department, must be registered before distribution (54-820.01).

5. AGRICULTURE

Any operator of a drylot cattle-feeding operation within the confines of a permanently fenced lot must register with the Nebraska Brand Committee for purposes of preventing fraud and theft (54-161). In addition, all livestock dealers, so defined as not to include the farmer or rancher, must obtain licenses from the Department prior to engaging in business (54-1704). The State Veterinarian is given authority to inspect livestock dealers' premises for disease control purposes (54-1705). The Department is given general responsibility for seeing that livestock and stockyards are properly cared for (81-201). The State Veterinarian is empowered to adopt rules and regulations dealing with poultry flocks and hatcheries (2-3005). It is unlawful to feed garbage to swine without boiling it for at least 30 minutes (54-753.02). A license is required from the Department of Agriculture for the commercial feeding of garbage (54-753.03). An individual feeding his garbage to his own swine used for household purposes is exempt from the regulations (54-753.02). Feedlots which feed garbage must be maintained in a clean and sanitary condition and the animals must be fed on concrete or other impervious material (54-753.06). The Bureau of Dairies regulates the dairy feeding operation (81-229). The Bureau requires the submission of plans and specifications for waste management facilities for all new dairies. All cowyards must be graded or drained and shall have no standing pools of water or accumulation of manure (81-263.53). Manure packs must be properly drained and swine must be kept out of cowyards (81-263.53). Liquid waste must be disposed of in a sanitary manner (81-263.53). The milking barn must be kept clean and manure must be removed daily. No other animals shall be permitted in the milking barn (81-263.95). The milking yard must be drained to prevent forming of water pools and must be kept clean (81-263.96).

6. NUISANCE

The general definition of nuisance includes trades which cause offensive smells or render unwholesome or impure any watercourse, stream or other water (28-1016). All counties, cities, towns and villages have a primary responsibility to abate nuisance (18-1720). It is unlawful to erect a dam or other obstruction so as to produce stagnant waters which are injurious to the public health (28-1012). It is also unlawful to place any filthy substance into a well, spring or stream used for domestic purposes (28-1013). Nebraska courts have had numerous cases alleging that the operation of a feedlot constituted either a public or private nuisance. In 1976, the Nebraska Supreme Court reversed a trial court's dismissal of a nuisance action against a feedlot operator and established some general rules for this type of litigation.

7. NATURAL RESOURCE DISTRICTS

Nebraska has divided the state into Natural Resource Districts (NRD's) supplanting the myriad of special districts previously called soil and water conservation districts, watershed conservancy districts, etc. (2-3201). There is an umbrella state Natural Resources Commission (NRC) which has certain supervisory powers over the NRD's (3-2104). The purposes of the NRD's are to develop programs in erosion prevention and control, soil conservation, solid waste and sanitary drainage problems, pollution control, etc. (2-3229). The NRD's are given specific authority to provide technical and other assistance in rural areas to abate the lowering of water quality caused by effluent from feedlots or runoff from cropland (2-3241). As noted earlier, about 5 of the 24 NRD's now have cost-sharing programs for feedlot pollution control facilities. The NRD's have the land use powers of the soil and water conservation districts they absorbed, but because of the extensive city and county zoning laws, these powers have not been utilized (3-3244).

8. LAND USE

Nebraska has a comprehensive system of planning and zoning dominated by the Governor's Office of Planning and Programming (84-133). The Governor has the duty of preparing general land use plans and policies that will govern agricultural development in the state (84-136). Counties with large cities must develop comprehensive plans prior to zoning (84-151). If a new city is incorporated in a county having an existing zoning map, the county's land use plan will remain applicable until the city becomes a city of the first class (84-154). Counties have general zoning powers (23-174.01). Counties have the authority to enact both zoning and sanitary regulations dealing with the removal of nuisance, which may include, by specific mention, commercial feedlots, barns and dairies (23-174.10). Cities also have the power to plan and zone (18-902-3). Cities of the second class (population less than 5,000) and villages have extra-territorial zoning powers but do not have the authority to regulate agricultural lands (17-405.01). A local board of health may regulate within its boundaries all hogpens, cattle pens and stockyards (17-121). Cities of the first class also have extra-territorial zoning power (2 miles) but, again, may not interfere with agricultural activities (16-901). Cities of the primary class have extra-territorial zoning and police power to regulate all stockyards, commercial feedlots or other places where offensive matter is kept within a radius of 3 miles surrounding the city (15-237).

Nebraska was given the authority to administer the NPDES on June 12, 1974. The DEC is the administering agency.

NEVADA

Key to Legal Citation
Nev. Rev. Stat. §____
(§____)
(445.146)

1. WATER

The State Environmental Commission (SEC), and the Department of Conservation and Natural Resources (DCNR), Division of Environmental Protection are the agencies for implementing the state's water pollution control program (445.146, 445.456). The SEC is the rule-making agency; the DCNR is the permit-issuing agency (445.451, 445.473). Pollutant is so defined as to include agricultural wastes discharged into water (445.178). The regulations specifically include wastes from feedlots in the definition of sewage which triggers the requirement of obtaining a waste discharge permit. The primary system of regulation is the requirement of a permit for all discharges into the waters of the state (445.221). The SEC is the final authority in the administration of water pollution abatement and control (445.344). No other state agency or municipality may permit discharges in excess of those allowed by the SEC (445.344). The SEC requires permits for all size feedlots if there is a potential discharge. It is a misdemeanor to pollute the water so as to injure fish (503.430). No slaughterhouse operation may injure or obstruct the natural flow of any water body. Farmers who are injured due to violations of this slaughterhouse regulation may sue to recover damages (535.100). Except for livestock running at large upon the range, it is unlawful to herd or graze livestock on lands within one mile of a municipal water supply (568.330). It is also unlawful to herd or graze livestock within one mile of a home or ranch house (568.340).

ADDRESS: Department of Conservation and Natural Resources
Division of Environmental Protection
201 South Fall Street
Carson City, Nevada 89710
702/885-4670

State Environmental Commission
201 South Fall Street
Carson City, Nevada 89710
702/885-4670

2. SOLID WASTE

Prior to 1975 the State Board of Health, Bureau of Environmental Health was the agency responsible for implementing the state's solid waste management program (439.120, 439.200). In 1975 the SEC was given authority to develop a statewide solid waste management system (444.570). The program is administered by the DCNR (444.560, 444.570). The DCNR licenses all municipal solid waste management systems (444.570). The definition of solid wastes does not specifically include agricultural wastes (444.490). None of the requirements of the statutory scheme apply to agricultural activities (444.620). An exemption is given from the planning requirements for solid waste management systems used in an agricultural operation (444.620). It is unlawful to place garbage, offal or other offensive matter in public places (444.630).

ADDRESS: Department of Conservation and Natural Resources
Division of Environmental Protection
201 South Fall Street
Carson City, Nevada 89710
702/885-4670

3. AIR

The SEC and the DCNR are also responsible for the air pollution control program (445.421). Air contaminant is so defined as to include any substance except water discharged into the atmosphere (445.411). The basic regulatory system is a permit system (445.473). Local air pollution control programs may be established (445.546). Odor is so defined in the regulations as to include a characteristic of an air contaminant which makes it perceptible to the sense of smell (Reg. 1.43). Agricultural land use is exempted from the registration certificate and operating permit requirement for sources of air contaminants (Reg. 3.1.8). The odor regulation provides that the SEC shall investigate an odor when 30% or more of a sample of people exposed to it believe it to be objectionable. The source is in violation if two measurements taken 15 minutes apart but within one hour, are such that the odor is still detectable after dilution with 8 or more volumes of odor-free air (Reg. 10.1). No person shall permit the handling, transporting, or storing of any material which allows controllable particulate matter to become airborne.

ADDRESS: Department of Conservation and Natural Resources
Division of Environmental Protection
201 South Fall Street
Carson City, Nevada 89710
702/885-4670

4. COMMERCIAL FEED AND FERTILIZER

All feeds used for livestock must be labelled correctly; there is, however, no registration requirement (587.680). The Executive Director of the Department of Agriculture may exempt from the labelling requirements all feed that is not mixed with other ingredients (587.670). Fertilizer is defined to exclude manures (588.050). Manure is defined to include animal or fowl excreta when not artificially mixed with any material except those used for bedding, sanitary or feeding purposes (588.090). All fertilizers must be registered (588.170).

5. DEPARTMENT OF AGRICULTURE

All dairies must be licensed by the Health Division of the Department of Human Resources (DHR) (584.180). Dairy facilities may be inspected by the DHR for sanitation purposes (584.190). There is a State Board of Sheep Commissioners with rule-making authority over the sheep industry (562.250). There is a special livestock tax payable into the state livestock inspection fund (571.035). The yards, pens and premises at public livestock sales or auctions must be regularly cleaned and disinfected (573.140). If the livestock be held on the premises for over 10 hours, then facilities for feeding and watering must be provided (573.140). No person may conduct a livestock auction without a state license (473.020). There is also a licensing requirement for livestock brokers (576.020); this requirement is not applicable to a farmer or rancher purchasing or receiving livestock for feeding on his premises and not for immediate resale (576.140). All slaughterhouses must be kept in a sanitary condition (583.455).

6. NUISANCE

Private actions for nuisance abatement and damages are specifically allowed by statute (40.140). Private citizens may also sue to enforce the environmental statutes of the state (41.540). Public nuisance is broadly defined and includes the befouling of public waters (202.450). The State Board of Health division of the DHR has the authority to regulate and prevent nuisance (439.200). Local boards of health also have nuisance abatement authority (439.360). Counties may enact sanitary ordinances not in conflict with state laws (244.357). Counties must hold public hearings when a nuisance complaint is filed in the county clerk's office (244.360). County boards and city councils may also regulate air pollution, including odor problems (244.361, 268.410). City councils may regulate nuisance and provide that the abatement costs be recaptured from the nuisance owner (266.335).

7. SOIL AND WATER CONSERVATION

The State Conservation Commission oversees and advises local conservation districts (548.175). Local districts, after an election, may exercise land use regulations (548.410). The SEC may assist the local districts in formulating a comprehensive plan (548.430).

8. LAND USE

Cities may plan and enter into regional planning arrangements (268.110). The regional planning agency for Lake Tahoe has supreme planning authority (268.098). Cities may also zone (266.376, 268.240). Counties and cities have the general power to regulate land improvements and location of land uses (278.020). No exemption is made for agricultural uses. There is a statewide planning effort designed to regulate in areas of critical environmental concern or where large-scale development is involved (321.660, 321.690). In 1975 Nevada adopted a preferential assessment system for open-space land.

Feedlots would specifically fall under the definition of agricultural land. Assessment is to be at use value only. A partial recapture of the saved property tax for a maximum period of 7 years is imposed upon sale or change of use.

Nevada was authorized to administer the NPDES on September 20, 1975. The DCNR, Division of Environmental Protection is the administering agency.

NEW HAMPSHIRE

Key to Legal Citation
N.H. Rev. Stat. Ann. §____
(§____)
(149:2)

1. WATER

The Water Supply and Pollution Control Commission (WSPCC) is the agency responsible for implementing the state's water pollution program (149:2). The statute defines wastes broadly but makes no specific mention of agricultural wastes (149:1). The WSPCC has promulgated no regulations dealing with feedlots. There may be no discharge, however, without a state permit (149:8). Any person who contaminates the waters of the state is liable to the state for damages caused to fish or other aquatic life and wildlife (211:75). The pollution of waters used for domestic supply is a misdemeanor (148:1). Local boards of health may remove pollutants and charge the expense to the person who polluted (148:2). Willful pollution of domestic drinking water supplies is also a misdemeanor (148:3).

ADDRESS: Water Supply and Pollution Control Commission
105 London Road
Prescott Park
Concord, New Hampshire 03301
603/271-3503

2. SOLID WASTE

The WSPCC and the Department of Health and Welfare (DHW) are jointly responsible for implementing the solid waste program (149E:2). Any person building a waste disposal system must obtain a permit from the WSPCC (149E:3). Towns and cities are authorized to enter into regional cooperation agreements to dispose of solid waste (147:43). The placement of refuse on the land of another without his permission is a violation (249:27b). Both private and public disposal sites must be licensed by the DHW (147:25). This includes sites for the disposal of manure (147:24). Plans and specifications must be submitted to the DHW for approval (147:25). An exemption is granted, however, to individuals hauling or storing animal or poultry manure for use as a fertilizer (147:30d). General regulations limit the land application of waste water to lands having a slope of 2% or less. The maximum recommended loading rate is 2 inches/acre-week.

ADDRESS: Water Supply and Pollution Control Commission
105 London Road
Prescott Park
Concord, New Hampshire 03301
603/271-3503

Department of Health and Welfare
Division of Public Health
61 S. Spring Street
Concord, New Hampshire 03301
603 /271-2526

3. AIR

The DHW, Air Pollution Control Agency (APCA) is responsible for implementing the state's air pollution control program (125:80). Air contaminant is so defined as to specifically include odors (125:79). Wastes may not be burned without a permit (125:92). There are no odor or fugitive dust regulations.

ADDRESS: Department of Health and Welfare
Air Pollution Control Agency
State Laboratory Building
Hazen Drive
Concord, New Hampshire 03301
603/271-2281

4. COMMERCIAL FEED AND FERTILIZER

All feeds, except those exempted by the Commissioner of Agriculture, must be registered with the Department of Agriculture (441A:4). Fertilizer is defined to exclude unmanipulated animal manures (439:3). All fertilizers must be registered (439:4).

5. DEPARTMENT OF AGRICULTURE

All livestock dealers must be licensed (324:2). Dealers are defined so as not to include the typical feedlot operation (324:1). There is even a specific exemption for farmers who do not go from place to place buying or selling cattle or for a farmer who holds an auction sale in the regular operation of his farm business (324:8). Dairies must be kept in a sanitary condition subject to inspection by the Department (184:62). No person may feed garbage to swine without securing a permit unless he feeds only his own swine and uses them on the premises (144:2). All garbage must be boiled before being fed to swine (144:5).

6. NUISANCE

The DHW has overall state responsibility for public health and sanitation (125:9). City health officers may make regulations preventing and abating nuisance (147:1). No pigsty or pen may be erected in such a place or under such conditions that, in the judgement of the local health officer, it would be a nuisance (147:10). The leaving of offensive matter anywhere but in a public dumping facility is also a nuisance (147:13). A person may not operate a slaughterhouse without the written permission of the local health officers (147:15). City and town councils may regulate nuisance, including the location and construction of slaughterhouses, stables, barns and other unwholesome buildings or places (47:17).

7. SOIL AND WATER CONSERVATION

Although the Commissioner of Agriculture administers the federal soil and water conservation effort for the state, there is no state agency dealing with soil and water conservation problems (430A:2). Cities or towns may create conservation commissions with certain land use powers to control open space and other land and water areas (36A:4).

8. LAND USE

Cities, towns and villages have the authority to plan (36:2). Cities and towns may also jointly agree to create regional planning for such uses as agriculture and forestry (36:45). Cities may create interim zoning ordinances in which all land is deemed to be residential or agricultural use only (36C: 2). Agricultural uses are farming, dairying, and animal or poultry husbandry. Animal or poultry slaughtering is not allowed in these zones (36C:3). The raising of animals or poultry for commercial purposes is allowed only with permission of the local board (36C:3). An applicant must meet the following standards: a minimum lot size of 8 acres, a frontage of 500 feet, and building setbacks of 100 feet from the nearest right of way and 200 feet from the property line. A public hearing must be held to discuss the use and the measures taken to avoid unsanitary conditions and odor problems (36C:3). Permanent zoning is also authorized (31:60). There is no agricultural exemption contained in the rules for permanent zoning. New Hampshire has a preferential taxing scheme for farmland (79A:1). Agricultural land is assessed solely at its value for agricultural uses (79A:5). Upon sale of such land for non-agricultural purposes, a land use charge tax of 10% of the fair market value of the land is levied (79A:7).

New Hampshire has not been authorized to administer the National Pollutant Discharge Elimination System.

NEW JERSEY

Key to Legal Citation
N.J. Stat. Ann. §___(West)
(§___)
(13:1D-7)

1. WATER

The Department of Environmental Protection (DEP), through its Division of Environmental Quality and Clean Water Council, administers the water pollution control program (13:1D-7). The DEP is given a very broad statutory grant of power to make and enforce rules and regulations dealing with the pollution of waters by sewage, industrial waste waters or other harmful and deleterious matter (58:12-3). Neither the statutes nor the regulations give any definitions for these terms. The DEP has not enacted any regulations which concern the feedlot operation specifically. There is a general prohibition against the pollution of any potable water supply by excremental matter, slaughterhouse refuse, garbage or other material (58:10-1). There is a similar prohibition against the pollution by sewage or excremental matter of any "fresh water" supply in the state (58:10-5). It is unlawful to discharge offal or any other offensive matter into the Passaic River above Paterson (58:10-36). No person may erect a privy, slaughterhouse or other structure where drainage might or will tend to pollute the Passaic River (58:10-37). It is also illegal to place or deposit any hazardous substance that can find its way into any of the fresh or tidal waters of the state (23:5-28). The pollution of waters used by a state fish hatchery is also prohibited (23:8-5). No one may maintain a pigsty, hogpen, feedlot or other enclosure from which the drainage might find its way into waters used by a state fish hatchery. The fine for such pollution is $500 for the first offense (23:8-5). State aid is available to both municipal and county environmental commissions and to soil conservation districts for water pollution projects or other environmental purposes (13:1H-3).

ADDRESS: Department of Environmental Protection
Division of Water Resources
P. O. Box 2809
Trenton, New Jersey 08625
609/292-4091

2. SOLID WASTE

The DEP, in conjunction with an Advisory Council on Solid Waste Management, is responsible for implementing the state's solid waste management program (13:1E-3). Solid waste is defined to include agricultural wastes with the exception of animal and vegetable wastes collected by swine producers who are licensed by the Department of Agriculture to collect, prepare and feed such wastes to swine on their own farms (13:1E-3). All persons engaged in solid waste disposal must prepare registration statements before they may engage in the collection or disposal of solid waste (13:1E-5). This would seem to be geared to the municipal waste disposal problem rather than to the feedlot problem. The regulations provide that the disposal of solid waste must be through sanitary landfills, incinerators, or other processes approved by the DEP. There are no exemptions for agricultural waste operations. The Secretary of Agriculture is an ex officio member of the Advisory Council, which is basically a study and research body (13:1E-8). All counties are deemed to be solid waste management districts and, consequently, must prepare solid waste management plans (13:1E-23). New Jersey bars the disposal of waste, including agricultural waste, upon its land if the waste was collected or originated outside the state, with an exception being made for garbage that is fed to swine (13:1L-4). (Note: This statute was challenged in the courts and the US Supreme Court recently remanded to the New Jersey Supreme Court without declaring the validity or invalidity of the exclusion.)

ADDRESS: Department of Environmental Protection
Solid Waste Administration
P. O. Box 1390
Trenton, New Jersey 08625
609/292-9120

3. AIR

The DEP, in conjunction with the Clean Air Council, is responsible for implementing the air pollution control program (13:1D-7, 26:2C-8, 25:2C-3.3). While the definitions of air pollution and air contaminant do not refer to odors, odor was deemed to be an air contaminant within the purview of the definition of air pollution in a court opinion [Department of Health v. Owens-Corning Fiberglas Corp., 242 A.2d 21, aff'd 250 A.2d 11 (1968)]. The DEP has overall authority to enforce its own rules and regulations dealing with air pollution. It has deferred its rule-making authority over agricultural operations to the Department of Agriculture. There are no odor or fugitive dust regulations except in the context of incinerator emission standards.

ADDRESS: Department of Environmental Protection
Bureau of Air Pollution Control
P. O. Box 2807
Trenton, New Jersey 08625
609/292-6704

4. COMMERCIAL FEED AND FERTILIZER

All commercial feeds must be registered with the Department of Agriculture through the offices of the State Chemist (4:4-20.4). Commercial feeds are broadly defined, but the State Board of Agriculture may exempt any substance which is not adulterated from the registration and labelling requirements (4:4-20.3). Commercial fertilizers are so defined as to exclude unmanipulated animal manures (4:9-15.3). Soil conditioners are also defined to exclude unmanipulated animal manures (4:9-15.3). All fertilizer or soil conditioner manufacturers must obtain licenses from the State Board of Agriculture (4:9-15.5).

5. AGRICULTURE

The Department of Agriculture has assumed responsibility for regulating the confined animal feedlot operation. A Council of Agricultural Advisors for Guidelines for Livestock Waste in New Jersey, in conjunction with the New Jersey Agricultural Experiment Station, the Soil Conservation Service and the Department, recently completed a report which details recommended control techniques for various types of feedlot operations. The report deals with both the producer of the waste and the user of the waste. General guidelines include the need for a conservation plan and an agricultural waste management plan. Location of the facility and the problem of insect control are given primary attention. For feedlots and waste storage areas, windbreaks are recommended to minimize odors. The guidelines suggest some seventeen different types of activities that feedlot operators may choose from in order to minimize the threat of pollution. The wastes may be applied to the soil surface or may be plowed, disced or injected into the soil. For land application, the guidelines suggest a study of such factors as soil type, type of vegetative cover, and slope. Buffer strips of perennial grass are recommended for areas between a disposal site and any water body. Specific guidelines for the producer and the user, broken down by type of animal and facility used, are suggested. In addition, estimated costs of the various methods used to control pollution and references to good waste management practices are given. The Farmers Home Administration and ASCS are suggested as sources of loans and grants to purchase and operate the necessary facilities.

Before garbage may be fed to swine, it must be heated for a length of time sufficient to kill all pathogenic organisms (4:5-106.1). All individuals who feed garbage to swine must be licensed by the Department, which has authority to enact rules and regulations governing the swine feeding operation (4:5-106.3). An exemption from the licensing requirement is made for the farmer who uses his own household garbage to feed his own swine for use on his own farm (4:5-106.4). All licensees must have a minimum floor space of five square feet/animal for hogs up to 100 pounds, 7 1/2 square feet/ animal for hogs from 100-150 pounds and 9 square feet/animal for hogs over 150 pounds (Reg. 2:2-4.3). All shelters must be drained satisfactorily and no pools of stagnant water may be allowed to exist (Reg. 2:2-4.4). Feeding platforms must be cleaned before each feeding (Reg. 2:2-4.20). Solid wastes from garbage feeding operations must be removed and disposed of by burial in landfills, land application on a daily basis, composting or cesspools (Reg. 2:2-4.21). Liquid wastes must not be permitted to pollute receiving water or become a nuisance (Reg. 2:2-4.22). Vector control must be exercised (Reg. 2:2-4.24). All receiving points for poultry must be kept in a sanitary condition (4:5-96). All cattle dealers and brokers must obtain licenses from the Department (4:11-3). The license requirement is not applied to a person who ships cattle exclusively for slaughter, or who purchases cattle for the sole purpose of increasing or improving his or her flock (4:11-2). This would not seem to exclude the feedlot operation. While poultry brokers and dealers are also regulated by the Department of Weights and Measures, there is an exemption for poultry raisers, which would include the farmer (4:11-35). The State Department of Health and local boards of health may enact regulations that deal with the construction of dairy farms and waste disposal at dairy farms (24:10-57.20). The general sanitary condition of a dairy farm must be such as to insure a safe supply of milk (24:10-57.21).

ADDRESS: Department of Agriculture
John Fitch Plaza
Trenton, New Jersey 08625
609/292-3976

6. NUISANCE

Any building or place where the law (including the sanitary code) is violated is considered to be a nuisance (2A:130-2). A nuisance may be abated immediately (2A:130-4). Cities of the 4th class have the power to abate a nuisance and charge the cost to the owner (40:173-8). Local boards of health may enact ordinances protecting the public water supply, regulating the accumulation of offal, and controlling the dumping of garbage (26:3-31). Local boards may also define nuisance (26:3-45), and order abatement (26:3-46). No person or corporation may knowingly allow the accumulation of filth which is hazardous to health (26:3B-7). No person may deposit, store or accumulate decomposable animal matter or slaughterhouse refuse in such a manner that the polluting matter can gain access to any body of water (26:3B-4). Cities may regulate or prohibit the keeping of cattle, goats or swine in any part of the municipality (40:48-1).

7. SOIL AND WATER CONSERVATION

Within the Department of Agriculture there is a State Soil Conservation Committee (4:24-2.1). It has largely advisory and educational functions (4:24-6). Local districts may be created by petition and referendum (4:24-9). They may formulate land use regulations without requiring voter approval (4:24-23). Objections by the owners of over 25% of the acreage in the district will negate the proposed regulations (4:24-23). The State Committee must also review the regulations (4:24-23). There is also a soil erosion and sediment control program operated by the State Soil Conservation Committee (4:24-42). All projects that disturb more than 5.000 square feet of land may be regulated.

8. LAND USE

Both cities and counties are given broad grants of authority to zone and plan (40:55D-62). There are no exceptions for agricultural uses. The DEP may adopt land use regulations dealing with the alteration or pollution of coastal wetlands (13:9A-2). New Jersey gives preferential tax treatment for land deemed to be in agricultural use, including feedlot operations (54:4-23.3). There is a penalty for change of use of land that has been preferentially assessed through a rollback tax covering the past two tax years (54:4-23.8).

New Jersey has not been authorized to administer the National Pollutant Discharge Elimination System.

NEW MEXICO

Key to Legal Citation
N.M. Stat. Ann. §____
(§____)
(75-39-3)

1. WATER

The Environmental Improvement Agency (EIA) and the Water Quality Control Commission (WQCC) are jointly responsible for implementing the state's water pollution control program (75-39-3). The WQCC has the rule-making authority (75-39-4). The EIA is the permitting agency (75-39-4.1). Agricultural wastes fall under the general definition of wastes (75-39-2). Feedlot disposal systems would also fall under the definitions of sewerage systems and treatment works (75-39-2). The WQCC has promulgated several regulations of general applicability which deal with feedlots and it has recently adopted a groundwater pollution regulatory program also affecting feedlot operations. Any new discharger of water contaminants must file a notice of discharge with the EIA (Reg. 1-201). Most feedlot operations qualify as sewerage systems, triggering the requirement of filing plans and specifications with the EIA (Reg. 1-202). Under the revised regulations, all dischargers not required to get an NPDES permit must meet the following effluent standards: BOD 30 mg/l, COD 125 mg/l, settleable solids 0.5 mg/l, fecal coliform bacteria 500 organisms/100 ml and pH 6.6-8.6 (Reg. 2-100-101). There is a prohibition against the disposing of refuse in a natural watercourse (Reg. 2-201). The groundwater pollution regulation creates groundwater standards which must not be violated (2-402-3). Every discharger must file a discharge plan with the EIA (2-404). None of the exemptions would apply to feedlot operators except for the locational exemption (2-405). A discharge plan must ensure compliance with the groundwater standards (2-406). If a plan cannot ensure compliance, a permit may still be granted if, after weighing the economic and social impacts, the EIA determines that it would be in the best interests of the state to approve the plan (2-411).

ADDRESS: Environmental Improvement Agency
Water Quality Division
P. O. Box 2348
Santa Fe, New Mexico 87503
505/827-5271

2. SOLID WASTES

Within the EIA, there is a rule-making body designated as the Environmental Improvement Board (EIB) (12-12-5). Its primary purpose is to enact regulations and standards which are subsequently enforced by the EIA. The authority of the EIB encompasses the control of solid and liquid wastes and refuse disposal (12-12-11). The EIB has not adopted any regulations applicable to the agricultural waste disposal problem. The EIA operates only on a case-by-case basis using its general nuisance abatement authority (12-12-11).

ADDRESS: Environmental Improvement Agency
Solid Waste Management Section
P. O. Box 2348
Santa Fe, New Mexico 87503
505/827-2693

3. AIR

The EIA and the EIB are also jointly responsible for implementing the state's air pollution control program (12-12-4, 12-14-3). The definitions of air contaminant and air pollutant do not specifically include odors (12-14-2). The EIB has not enacted any odor or fugitive dust regulations.

ADDRESS: Environmental Improvement Agency
Air Quality Division
P. O. Box 2348
Santa Fe, New Mexico 87503
505/827-2813

4. COMMERCIAL FEED AND FERTILIZER

All commercial feeds must be registered with New Mexico State University prior to distribution in the state (47-22-4). The Department of Agriculture and New Mexico State University regulate commercial fertilizers (45-13-12). Fertilizer material is defined to include any commercial fertilizer which is derived from animal residues or by-products (45-12-12). All commercial fertilizers and soil conditioners, which are defined to exclude unmanipulated animal manures, must be registered before distribution (45-13-13, 45-13-14).

5. AGRICULTURE

The Department of Agriculture and New Mexico State University are responsible for inspecting and licensing the dairy facilities in the state (52-1-13). The Livestock Board (LB) inherited the powers of the Cattle and Sheep Sanitary Boards. It has the authority to regulate the general livestock industry in order to protect the public from diseased or unwholesome meat (47-23-6). The LB conducts sanitary inspections of livestock producers (47-2-18). The primary responsibility seems to be the surveillance of diseased animals rather than waste disposal (47-3-5). There are statutes that call for sanitary stockyards at both market centers and railroad yards (47-7-8-9). The Sanitary Board cooperates with the EIA in the inspection of feedlots. Its primary responsibility, however, is to prevent animal diseases. It does become involved with feedlots where nuisance complaints are filed. Garbage may not be fed to swine unless the operation has received a permit from the LB (47-7-24). Garbage must be boiled for at least 30 minutes before being fed (47-7-25). Sheep control is also under the aegis of the LB.

6. NUISANCE

The Department of Health and Social Services has primary responsibility to abate nuisances (12-34-3). Pollution of the state's water and the unlawful disposal of refuse, which is broadly defined, are made public nuisances (40A-8-2-4). Municipalities may by ordinance define and abate any nuisance (14-17-14).

7. SOIL AND WATER CONSERVATION

The State Soil and Water Conservation Committee has largely advisory powers over local soil conservation districts (45-5-47). Local districts do not have land use authority (45-5-59). They do have taxing authority of up to one mill per dollar of assessed valuation (45-5-61).

8. LAND USE

Both counties and cities are given the authority to zone and plan (14-20-1). Cities are given the authority to zone in unincorporated areas (14-20-2.1). Special zoning districts may be created outside cities and these may enact zoning ordinances (14-20-16). There is no agricultural exemption from either county or city zoning ordinances. Land used primarily for agricultural purposes may be assessed at its agricultural use value (72-29-9). There is no penalty if the land use is changed.

New Mexico has not been authorized to administer the National Pollutant Discharge Elimination System.

NEW YORK

Key to Legal Citation
N.Y. [Subject] Law §____ (McKinney)
(Subject Law §____)
(Environmental Conservation Law 1-0301)

1. WATER

The Department of Environmental Conservation (DEC), Division of Pure Waters is responsible for implementing the state's water pollution control program (Environmental Conservation Law 1-0301, 3-0301). The Commissioner of the DEC has rule-making authority (ECL 3-0301). There is an advisory State Environmental Board which has 16 members, including the Commissioner of Agriculture and Markets and one public representative from the agricultural sector (ECL 5-0101). The definition of sewage would include animal wastes (ECL 17-0105). Pollutant is specifically defined to include agricultural wastes discharged into the water (ECL 17-0105). A state permit is required for any point source or for the modification of waste discharge through an existing outlet or point source (ECL 17-0505, 17-0507). State permits are required for the discharge of any sewage into the waters of the state (ECL 17-0701). The DEC has developed, jointly with its Council of Agricultural Advisors, a document entitled "Guidelines for Environmentally Sound Management of Animals and Animal Production Farms." Farm siting and planning for new or expanding facilities are considered to be of paramount importance in minimizing pollution problems. Proper site selection includes such considerations as the provision of sufficient acreage for land application of the animal wastes generated at the facility and the analysis of soil types. The guidelines provide recommended management techniques for manure handling and general sanitation for various types of confinement facilities. These recommendations are given by animal types, i.e., cattle, horses, chickens, turkeys, ducks and swine. All feedlots which discharge into the waters must meet the effluent limitations contained in Part 700 of the regulations dealing with water quality standards for receiving streams. These include both surface and groundwater standards. Under Part 652 the regulations require that, prior to the construction or operation of any water pollution abatement facility, a report and/or plans must be submitted to the DEC. The Guidelines provide that the regional offices of the DEC will handle most of the agricultural projects under Part 652. Liquid waste, including discharge from feedlots, and sewage discharges must be monitored under Part 652. Until New York was given NPDES approval, feedlot operators were required to obtain both the NPDES and SPDES permits. Since there are no limits placed in the statute on the size of feedlots, it would seem that all feedlots regardless of size, if they have discharge, would be required to obtain SPDES permits (Part 750-757).

There are some general prohibitions against water pollution as well. No garbage or refuse may be dumped or permitted to run into the waters of any marine district (ECL 13-0345). Sewage or any other substance injurious to edible fish or shelfish or which creates an objectionable odor or sanitary condition, is not allowed in any marine district or waters of Long Island (ECL 17-0503). No deleterious substance shall be allowed to run into any waters, whether public or private, where it may be injurious to fish or wildlife (ECL 11-0503). No person may place sewage or other matter injurious to fish where it can find its way into water used by a state fish hatchery (ECL 11-0503). No person shall erect or maintain a pigsty or poultry enclosure where the drainage or refuse will find its way into a state fish hatchery (ECL 11-0503). Any such use is deemed to be a public nuisance and may be summarily abated. It is illegal to deposit refuse or other matter into the waters of any canal system (Canal Law 82). There is also a set of regulations filed pursuant to a Stream Protection statute, which prohibits the change or modification of any material from the bed or banks of any stream for which the DEC has established a certain water quality standard. There is an exception for farm ponds of less than 10 acres holding less than 1.5 million gallons. Most farm operators would not come under the stream protection regulations, although the Guidelines do warn that certain improvements might require permits. No sewage, other noxious solid or liquid matter, or effluent may be discharged into either Lake George or Skaneateles Lake (ECL 17-1709). Enforcement is delegated to the local board of health (ECL 17-1709). The DEC may also adopt regulations to protect from contamination any public supply of potable water in the state (Public Health 1100).

ADDRESS: Department of Environmental Conservation
Division of Pure Waters
50 Wolf Road
Albany, New York 12233
518/457-6674

2. SOLID WASTE

The DEC, Division of Solid Waste Management is also responsible for implementing the statewide solid waste management program (ECL 3-0301). It may provide and recommend methods for the disposal of solid waste (ECL 3-0301). The Division of Solid Waste Management within the DEC has not promulgated any regulations dealing with the solid waste problems of confined animal feedlot operations. The DEC may approve all new solid waste management facilities, which are broadly defined and might include the feedlot operation (ECL 27-0501, 17-0507). The Guidelines make extensive recommendations on the land disposal of manure and other alternative strategies for its disposal. These would include dehydration, composting or the use of oxidation ditches for processing swine and poultry manure. Soil injection is also recommended as an effective means of land spreading under certain conditions. There are also recommendations for the temporary handling and storage of manure, especially in dairy and poultry facilities. Liquid manure storage techniques are discussed at length. Four alternative methods for disposal of dead animals are recommended, including a rendering plant, sanitary landfill, on-site disposal and incineration. The cleaning and ventilation of various types of feedlot facilities, including recommended manure handling and management techniques, are discussed for various types of livestock and poultry. The Guidelines recommend that residual wastes that are not disposed of by any of the recommended techniques be contracted out to private or public disposal systems for placement in a sanitary landfill. Under Part 260 of the regulations, all new refuse disposal areas must be approved by a health officer. Thus, if a farmer is planning to use a new area for land disposal, the Guidelines recommend that he contact the county extension agent or a DEC field office.

ADDRESS: Department of Environmental Conservation
Division of Solid Waste Management
50 Wolf Road
Albany, New York 12233
518/457-6605

3. AIR

The DEC, Division of Air Resources is the agency responsible for implementing the state air pollution abatement program (ECL 3-0301). Air contaminant is defined to include dust and odor (ECL 19-0107). The Guidelines suggest that sources of air contaminants such as ventilating systems in buildings used to house animals, manure storage systems, manure dehydration systems, fields where manure is spread and incinerators of dead animals would all be required to obtain permits under the statute (ECL 19-0107). In the regulations there is no exemption for any of these agriculturally-related operations from the permit requirement (Part 201). Under Part 211, no person shall allow air pollution as defined by the statute. This could include agricultural sources. Manure dehydrating systems come under Part 212, which requires a permit to construct, and a certificate to operate, an exhaust or ventilation system. Part 219 would limit particle and smoke emissions from incinerators used for dead animals. The DEC has a list of acceptable incinerator models which should be utilized. A permit to construct, and a certificate to operate, are also required. Qualified air pollution control facilities are exempt from real property tax to the extent of the increase in the value of the operation. There are no odor-related regulations except those concerning the operation of incinerators; there are no fugitive dust regulations.

ADDRESS: Department of Environmental Conservation
Division of Air Resources
50 Wolf Road
Albany, New York 12233
518/457-7231

4. COMMERCIAL FEED AND FERTILIZER

No person may manufacture or distribute commercial feed in the state without registering with the Commissioner of Agriculture and Markets (Agriculture & Markets 129). The Commissioner may exempt from the definition of commercial feed such compounds as are not adulterated within the meaning of the statute (Ag & M 128). All commercial feeds except customer-formula feeds must be properly labeled (Ag & M 146). Commercial fertilizers are so defined as to exclude unmanipulated animal manures (Ag & M 143).

5. AGRICULTURE

It is the public policy of the state to eliminate the feeding of garbage to cattle, swine or poultry. No person shall feed garbage, unless it has been cooked at 212 degrees Fahrenheit for a period of 30 minutes, to swine (Ag & M 72-a). All persons who feed cooked garbage to swine or other livestock must obtain permits from the Commissioner. The Commissioner also regulates dairies and dairy barns. No person shall keep a dairy cow in an unhealthful or unsanitary surrounding (Ag & M 47). All dairy barns must be kept in a sanitary condition (Ag & M 47). The Commissioner has not promulgated any regulations dealing with dairy sanitation. The Commissioner also has the authority to enforce rules regulating the sanitary conditions of stables and livestock auction buildings (Ag & M 75). All persons engaged in the slaughterhouse business must be licensed by the state (Ag & M 96-b). This does not include any farmer who butchers his own animals or fowl for personal use (Ag & M 96-c).

6. NUISANCE

The Commissioner of Public Health, on the state level, is possessed with all the powers necessary to investigate and abate nuisance (Public Health

1300). Putting noisome or unwholesome substances on or near a highway is a nuisance (Pub Heal 1300-a). Local boards of health also have the authority to investigate and abate nuisance (Pub Heal 1303). Abatement expenses are to be borne by the owner or occupant of the premises (Pub Heal 1306). The manufacturing of fertilizer or rendering of fat is prohibited in any city in the state or within three miles of any city. An exception is made for the rendering of freshly killed cattle or swine and for certain counties (Pub Heal 1335). Cities have general nuisance abatement powers, including the ability to license certain businesses (General City 20). Towns may regulate unnecessary emissions of smoke or noxious gas and may regulate the keeping of livestock (Town 130). They may also regulate the location of slaughterhouses and rendering works or other noisome buildings or places (Town 130).

7. SOIL AND WATER CONSERVATION

There is a statewide Soil and Water Conservation Committee which is established in the State College of Agriculture (SCD 4). Its authority is primarily advisory in nature (SCD 4). Local soil conservation districts have the power to develop comprehensive plans and to carry out preventive and control measures within the district (SCD 9). They do not have land use authority. A recent amendment to the law requires every owner of agricultural land to apply by January 1, 1978 to the local district for a soil and water conservation plan. By January 1, 1980, the districts must have provided that plan; it must be reviewed at least once every five years. These plans must attempt to prescribe agricultural practices that will minimize pollution, erosion and sedimentation loss. Concentrated animal operations are included if the animal density is greater than two animal units/acre or if the farm is likely to contribute to the degradation of surface water or groundwater.

8. LAND USE

The state has authorized the creation of agricultural districts on the county level in response to the petition of any owner of agricultural land, which is defined to include a feedlot operation (Ag & M 303). Land within these districts is to be valued solely for agricultural purposes. Any land that is placed in such a district must be at least 10 acres in area (Ag & M 305), or be covered by an agreement to keep the land in agricultural use for 8 years (Ag & M 306). A rollback tax covering the taxes payable on the fair market value assessment for the previous five years is collected by the state upon a change in use (Ag & M 305). Cities and villages are given general powers to zone and plan (Gen Mun 236). Towns are also given general authority to zone and plan (Town 261). County and regional planning is also authorized (Gen Mun 239-b). There are no exceptions made for agricultural uses.

New York was authorized to administer the NPDES on October 28, 1975. The DEC is the administering agency.

NORTH CAROLINA

Key to Legal Citation
N.C. Gen. Stat. Ann. §____
(§____)
(143B-278)

1. WATER

The Department of Natural Resources and Community Development (DNRCD), Water Quality Section is responsible for implementing the state's water pollution control program (143B-278, 143-2153). Within the DNRCD an Environmental Management Commission (EMC) is given extensive rule-making authority (143B-282). There is also an advisory Water Quality Council (WQC) which contains representatives from the agricultural sector (143B-321). The EMC consists of a group of designated individuals, including one engineer, one individual experienced in agriculture and one associated with the groundwater problem, among others (143B-283). The DNRCD issues both the NPDES permits and state permits for dischargers who affect water quality by virtue of their discharges (143-215.1). Sewage, industrial waste and other wastes are all defined as wastes for the purposes of requiring a permit for discharges, and for the operation of disposal systems and treatment works (143-213, 215). The EMC has promulgated regulations which deal specifically with feedlots (Reg. .0122). In addition, the regulations require feedlots which do not require an NPDES permit to obtain a state permit in situations where there is a discharge to state waters or urban runoff can occur from the feedlot that could cause a violation of a water quality standard. The decision on permit requirement is made on a case-by-case basis after an on-site inspection by Department personnel (Reg. .0123). The procedure calls for a permit application to be filed after an administrative determination, utilizing accepted modeling systems, that a discharge or runoff will occur (Reg. .0123). Discharges that occur only in the event of the 25-year, 24-hour storm will not trigger the permit requirement. In making its determination as to the need for a state feedlot permit, the DNRCD must consider the size of the operation, the amount of waste generated, the location of the feedlot relative to surface waters, the means of conveyance of the waste, the degree of slope, the nature of vegetation, the extent of rainfall, the frequency of potential discharges and other relevant factors (Reg. .0123). Written notice of the decision to require a permit must be given to the operator. The operator is given an opportunity to modify his management practices to avoid the permit requirement (Reg. .0123). Several tests, including soil evaluation and measurement of other topographic characteristics, must be run before the DNRCD may require a state permit (Reg. .0123). Prior to December 1976, the effective date of these regulations, feedlot operators were exempt from the state permit requirements for disposal systems and treatment works if they were operating in accordance with Commissioner of Health Service regulations for solid waste disposal units (Reg. .0217). DNRCD permittees have extensive safety, sanitary and testing requirements imposed upon them for water quality in any receiving waters (Reg. .0508).

ADDRESS: Department of Natural Resources
and Community Development
Division of Environmental Management
Water Quality Section
P. O. Box 27687
Raleigh, North Carolina 27611
919/829-4740

2. SOLID WASTE

The Department of Human Resources (DHR), through its Solid Water Unit, is responsible for implementing the state's solid waste disposal system (130-166.17). Solid wastes are defined to include agricultural wastes (130-166.16). All solid waste that accumulates on the operator's premises must be stored in a sanitary manner. All solid waste must be disposed of by a process approved by the DHR. All disposal processes must be nuisance-free. North Carolina also allows the creation of sanitary districts after a voter referendum (130-124). Although their powers are quite broad (130-128), it appears that they are primarily involved in municipal waste disposal problems, including sanitary landfill operations (130-128).

ADDRESS: Department of Human Resources
Solid Waste Unit
P. O. Box 2091
Raleigh, North Carolina 27602
919/772-2178

3. AIR

The DNRCD and the EMC are also responsible for implementing the state's air pollution program (143-215.106, 143-215.3). Air contaminant is so defined as to include dust, but odor is not specifically mentioned (143-213). The regulatory system is basically a permitting operation (143-215.108). The EMC has promulgated regulations dealing with odorous emissions. Although one part of the regulation states that the regulation applies to all sources of odorous emissions, the other section deals only with controlling odorous emissions from a plant engaged in the processing of animal matter. There are no fugitive dust regulations. The EMC has the power to transfer to counties or cities responsibility for local air pollution control programs (143-215.112).

ADDRESS: Department of Natural Resources
and Community Development
Division of Environmental Management
Air Quality Section
P. O. Box 27687
Raleigh, North Carolina 27611
919/733-5188

4. COMMERCIAL FEED AND FERTILIZER

The Agriculture Department is given authority to require the registration of all commercial feeds (106-284.34). No feed may be adulterated (106-284.38). The Board of Agriculture is authorized to enact regulations dealing with biological residues in animals or animal feeds (106-459.81). It regulates articles of food which include matter fed to animals (106-121). Fertilizers are also regulated by the Board, with fertilizer material being so defined as to exclude unmanipulated animal manures (106-50.3). Manipulated manures are defined to include any kind of manure that has been processed in any manner, including drying. With manipulated manures, minimum percentages of nutrients must be guaranteed (106-50.3).

5. AGRICULTURE

The Commissioner of Agriculture is authorized to grant permits before garbage may be fed to hogs (106-405.2). Where garbage is fed, the feeding platforms must be kept in a sanitary condition to prevent rat and fly infestation (106-405.5). No permit may be issued if local regulations prohibit the feeding of garbage to swine (106-405.2). All garbage must be boiled for at least 30 minutes prior to feeding (106-405.6). The Milk Commission regulates the operation of dairies (106-266.8).

6. NUISANCE

Local boards of health are given the primary responsibility for abating nuisance (130-20). Cities may also abate any nuisance both within city limits and up to one mile outside of the city (160S-193). It is unlawful to place refuse or waste materials upon the lands of another without his consent (14-134.1). It is unlawful to pollute the natural flow of water into any fish hatchery (113-265).

7. SOIL AND WATER CONSERVATION

The State Soil and Water Conservation Commission is vested with overall supervision of local soil and water conservation districts (139-4). Soil and water conservation districts may be created and may exercise land use powers after a voter referendum (139-9). North Carolina has an extensive sedimentation control program operated by the DNRCD and local soil and water conservation districts (113A-51). However, agricultural operations, including poultry raising, dairies and livestock raising are excluded from the operation of the law (113A-52).

8. LAND USE

The state regulates development in the coastal area, but development is so defined as to exclude agricultural operations (113A-103). An Advisory Committee on Land Policy made up of farmers and agribusiness personnel, among others, advises the Governor on state land use policy in general (113A-154). Sanitary districts may zone and plan after they have received voter approval. Counties may zone, but agricultural uses are specifically exempted from the zoning power (153A-340). Cities may zone up to one mile beyond their boundaries (160A-360). There is no exemption for agricultural operations in city zoning (160A-381). Agricultural lands may be assessed at present use value for property tax purposes (105-277.4). For land preferentially assessed there is a deferred tax payment required after a change of use (105-277.6).

North Carolina was authorized to administer the NPDES on October 19, 1975. The DNRCD is the administering agency.

NORTH DAKOTA

Key to Legal Citation
N.D. Cont. Code §____
(§____)
(61-28-04)

1. WATER

The State Department of Health (DOH), Division of Water Supply and Pollution Control is responsible for implementing the state's water pollution control program (61-28-04). Within the DOH there is an Environmental Health and Engineering Services Section that deals directly with the problem. There is, in addition, a State Water Pollution Control Board made up of ten persons, of whom three must represent agricultural interests, that approves and recommends DOH rules and regulations on water pollution (61-28-04). Agricultural pollution falls under the statutory definition of wastes (61-28-02). This triggers the requirement of permits for all treatment works and disposal systems (61-28-04). North Dakota has a specific regulatory scheme dealing with feedlot water pollution problems. All feedlots containing more than 200 animal units, all feedlots located on a flood plain with 100 animal units or more, and all operations where the distance to the nearest water is less than 2 feet per animal unit must seek permits. In addition, any feedlot must obtain a permit if it is likely to cause water pollution (R 61-28-03). All permittees must insure that no discharge will occur; if present operations do not so insure, the Department will require a plan for prevention of pollution that it must approve before a construction or operating permit will be granted (R-61-28-04). The feedlot operator has 120 days in which to comply with the no-discharge requirement (R 61-28-04). The guidelines that accompany the regulations suggest several sources of financial and technical aid which the operator can utilize in preparing a valid disposal plan. The SCS provides specifications for runoff control systems, holding pits and disposal lagoons. The guidelines also describe several drainage systems which can be utilized in order to minimize potential water pollution problems. Minimum runoff control facilities for unroofed feedlots must be capable of retaining runoff from the 10-year 24-hour storm. The DOH recommends the use of a settling or solids removal channel, basin or pond to precede the main holding basin. The bottom and sides of the storage system must be of relatively impervious material. Seepage pits are usually not acceptable. The DOH suggests returning the solids and retained runoff to the land.

ADDRESS: Department of Health
Division of Water Supply and Pollution Control
1200 Missouri Blvd.
Bismarck, North Dakota 58501
701/224-2348

2. SOLID WASTE

The Department of Health, Division of Solid Waste Management is authorized to enforce the Solid Waste Management and Land Protection Act (23-29-04). Any political subdivision of the state may enact and enforce a solid waste management ordinance if the ordinance is at least as stringent as the state statute (23-24-05). Agricultural waste problems are specifically mentioned in the legislative findings as requiring a solution, but the overall statutory scheme for permits and inspections appears to be oriented to the municipal solid waste disposal problem (23-29-01 et seq). There are no regulations specifically applicable to the feedlot operator. General regulations require solid wastes to be stored and disposed of in a manner that does not create a nuisance.

ADDRESS: Department of Health
Division of Solid Waste Management
1200 Missouri Blvd.
Bismarck, North Dakota 58501
701/224-2354

3. AIR

The Department of Health, Division of Environmental Engineering is responsible for implementing the air pollution abatement program (23-25-03). There is, in addition, a State Air Pollution Control Agency which is an advisory council; there is no requirement of agricultural representation on it (23-25-02). By a recent amendment to the law, air contaminants are defined to include odorous substances (23-25-01). The basic regulatory scheme is a permit system with the right of on-site inspection (23-25-05). The regulations prohibit the emission of any air contaminant that may cause a public nuisance. No person may allow the emission of fugitive dust so as to cause a public nuisance or violate the ambient air quality standards without taking reasonable precautions. This restriction applies to agricultural practices. Odor regulations were being drafted for review in September 1977. Pending regulation, the DOH uses informal and formal hearings to prevent odor problems on a case-by-case basis.

ADDRESS: Department of Health
Division of Environmental Engineering
1200 Missouri Blvd.
Bismarck, North Dakota 58501
701/224-2374

4. COMMERCIAL FEED AND FERTILIZER

Both the feed and fertilizer laws are enforced by the State Laboratories Department (19-13.1-01, 19-20.1-01). All feeds or feed ingredients must be registered with the Department prior to distribution (19-13.1-03). The definition of commercial fertilizer excludes unmanipulated animal and vegetable manures (19-20.1-02).

5. AGRICULTURE

The State Livestock Sanitary Board regulates the feeding of garbage to swine (36-01-23). Garbage is defined to include animal waste matter and animal carcasses (36-01-21). All persons who feed garbage to swine must obtain permits (36-01-22). All garbage must be boiled and the feeding areas must be kept in a reasonably sanitary condition (36-01-26). All feedlots must be registered with the Board (36-01-30). In addition, all livestock dealers must be licensed by the Department of Agriculture (35-04-04). All stockyards operated by railroads and all livestock auction markets must be kept in a sanitary condition (36-20-01, 36-05-07). The Dairy Commissioner is responsible for regulating and licensing all dairy farm operations (4-30-33). The DOH refers dairy operations to the Dairy Commissioner for approval of the disposal system.

6. NUISANCE

Both city and county boards of health have the authority to inquire into any nuisance and to seek abatement if, in fact, a nuisance is found (23-05-01, 23-05-04). Nuisance is broadly defined by statute (42-01-01).

7. SOIL CONSERVATION

There is a State Soil Conservation Committee with general advisory powers over local Soil Conservation Districts (SCD's) (4-22-03). SCD's are formed after popular referendum, and may carry out preventive measures and develop comprehensive plans including land use controls, when voted on affirmatively by a majority of the residents in the SCD (4-22-26).

8. LAND USE

Counties are given the express authority to zone and plan, with no exclusion being made for agricultural uses (11-33-01). Cities have authority to zone and plan within their jurisdictions as well (40-48-18). All farm structures and improvements located on agricultural lands are totally exempt from the real property tax (57-02-08). Agricultural land within a municipality is valued as agricultural land, on the same basis as agricultural land outside the city boundaries (57-02-27).

North Dakota was authorized to administer the NPDES on July 8, 1975. The Department of Health is the administering agency.

OHIO

Key to Legal Citation
Ohio Rev. Code Ann. §____ (Page)
(§____)
(3745.01)

1. WATER

The Ohio Environmental Protection Agency (OEPA) is responsible for implementing the state's water pollution control program (3745.01). Agricultural pollutants are not specifically mentioned in the statutes and might fall under the definition of either sewage or other wastes (6111.01). There are no regulations specifically applicable to feedlots, but there is a detailed "Livestock Management Guide" (LMG) that is utilized to advise operators as to minimum requirements both as to runoff and to solid waste disposal problems. All feedlots regardless of size are regulated. A feedlot of less than 300 animal units must either be SCS-designed or go through an OEPA site inspection and plan approval (6111.44). For the 300-1000 unit feedlot there must be a site inspection and a permit to install for a new facility, or a plan approval for an existing facility (6111.45). For the 1000+ feedlot, a site inspection, permit to install and NDPES permit are required (6111.03). There is a general statutory prohibition against any discharges which cause pollution, except where a valid permit has been issued (6111.04). The permitting requirement is not imposed on the spreading of any materials on the land for agricultural purposes, on the runoff from such materials, or on the excrement of farm animals deposited on land, except as required by the US EPA (6111.04). The LMG recommends various management systems for the different types of feedlot operations. These systems cover such diverse problem areas as collection, storage, transport, treatment and utilization. The LMG discusses the economic problems of the feedlot operator, giving estimated capital and operating costs for various types of handling systems. The LMG also suggests site location policies for aerobic lagoons and anaerobic lagoons. Aerobic lagoons should be 300 feet, and anaerobic lagoons should be 1000 feet from a property line. Land application of manure is recommended as the primary means of disposal becuase of its low costs and high benefits. The LMG recommends individual manure application plans for each unit, with consideration being given to such factors as the characteristics of the manure (i.e., nitrogen content), number of animal units, land available for application, types of crops and rotation system, topography of application area and time of year (minimal winter application). Nitrogen content is considered to be the primary control on the application rate. Manure spread on the land surfaces should be incorporated into the soil as soon as possible. The LMG also has recommendations on controlling runoff from rainstorms through the use of detention and settling ponds and grass filters.

ADDRESS: Ohio Environmental Protection Agency
P. O. Box 1049
361 East Broad Street
Columbus, Ohio 43216
614/466-3934

2. SOLID WASTE

The solid waste management program is operated by the OEAP (3734.02). The OEPA issues permits for all solid waste disposal sites, which would seem to include those used for the land application of manure (3734.02). OEPA, through the LMG and water permit requirements, has opted not to regulate feedlots under the general solid waste statute and regulations. The State Board of Health, as well as local boards, may regulate the disposal of solid wastes, including agricultural wastes (3734.02). An exemption is made for operations which use ponds and lagoons as a means of waste treatment.

ADDRESS: Ohio Environmental Protection Agency
P. O. Box 1045
361 East Broad Street
Columbus, Ohio 43216
614/466-8934

3. AIR

The OEPA, Office of Air Pollution Control is responsible for implementing the air pollution control program (3704.03). Air contaminants are broadly defined to include dust and odorous substances (3704.01). The regulations prohibit the emission of fugitive dust or odors that would constitute a nuisance. No person may permit the handling of any materials without taking reasonable precautions to prevent the emission of fugitive dust. Incinerators burning agricultural wastes must not emit more than one pound of particulate matter per 1000 pounds of refuse charged, and may not emit objectionable odors. The LMG recommends measures to minimize the odor problem. Siting of the feedlots is considered to be important in this respect. The LMG recommends the maintenance of aerobic conditions in the waste, the use of a closed handling and disposal system and the use of commercial odor control products.

ADDRESS: Ohio Environmental Protection Agency
P. O. Box 1049
361 East Broad Street
Columbus, Ohio 43216
614/466-7390

4. COMMERCIAL FEED AND FERTILIZER

All commercial feed manufacturers and distributors must be licensed by the Department of Agriculture (923.42). There is no mention of refeeding in the statutes. Fertilizers are also regulated by the Department of Agriculture. Fertilizer is defined to exclude unmanipulated and unmixed animal manures (905.31). Manure may not be processed in any manner and still be considered to be unmanipulated (905.31). All fertilizer manufacturers and distributors must be licensed (905.32).

5. AGRICULTURE

All livestock dealers and brokers must obtain licenses from the Department of Agriculture (943.02). The definition of dealer excludes those who buy animals for the purpose of grazing or feeding, and who intent to keep the animals at least one month (943.01). The Commissioner of Agriculture is directed to promote and protect the livestock industry. The Department of Agriculture licenses persons who feed garbage to swine or poultry (942.02). The premises used to feed garbage must be so constructed that they can be cleaned and disinfected (942.06). All garbage must be so disposed of as to prevent breeding of flies, attraction of rats and contamination of adjacent property (942.09). The State Department of Health has overall regulating authority over the sanitary conditions of dairies. Manure storage ponds should be located at least 100 feet from the water supply. Control of flies and rodents must be maintained. The cowyard must be graded, drained and levelled. Wastes from the barn and milk house are not allowed to accumulate in cowyards. Cowyards must be reasonably free from manure. Local boards of health have the responsibility of inspecting dairies and cow stables within their jurisdictions for sanitary conditions (3707.36).

6. NUISANCE

City and county boards of health may abate all public nuisance (3707.01). They may also regulate the location, construction and repair of yards, pens and stables (3707.01). Offal and dead animals may not be disposed of upon land or water so as to create a nuisance (3767.16). No person may dispose of waste in state waters without an OEPA permit (3767.32). Cities may also abate nuisance (715.40).

7. SOIL AND WATER CONSERVATION

There is an umbrella State Soil and Water Conservation Commission (SWCC) which has certain advisory and financial powers over local districts (1515.02). The SWCC has the responsibility of coordinating the state program for abatement of agricultural pollution with the Director of Natural Resources (1515.11). Under a proposed amendment, local SCD's may require the use of recommended management and conservation practices to control erosion, wind blown sand, sedimentation or animal waste pollution. Local districts have the authority to enact regulations implementing soil and water conservation plans (1515.09). They may contract with the State Department of Natural Resources for the implementation and funding of agricultural pollution abatement measures [1515.9(c)]. The State DNR may share costs of local districts' improvements (1515.16).

8. LAND USE

Cities may plan extra-territorially (713.02). Extra-territorial zoning is, however, not authorized (713.06). Townships may zone as well (519.03). Agricultural activities including dairying, animal husbandry and poultry husbandry are specifically excluded from the scope of the township zoning ordinance (519.21). Similarly, counties may zone, but agricultural activities are excluded from the operation of the ordinance (303.21). Agricultural lands may be assessed at agricultural use value rather than at market value for property tax purposes (5713.31). If the land use be changed the owner must pay the full amount of tax based on the fair market value of the land (5713.55).

Ohio was authorized to administer the NPDES on March 11, 1974. The OEPA is the administering agency.

OKLAHOMA

Key to Legal Citation
Okla. Stat. Ann. tit____, § ____(West)
(tit____, § ____)
(82-926.3)

1. WATER

[Caveat - The Water Resources Board (WRB) apparently does not actively regulate feedlot operations within the state. The statutes, however, do not specifically exclude feedlot operations from WRB consideration, eventhough the present administrative policy is to defer to the State Board of Agriculture. For that reason a brief summary of applicable water pollution-related statutes other than the Oklahoma Feed Yard Act is included.]

The WRB is given the statutory authority to prevent, control and abate new and existing sources of water pollution (82-926.3). All discharges of wastes or the construction of disposal systems must be accompanied by state permits (82-926.4). There are also a Department of Pollution Control and a Pollution Control Coordinating Board with regulatory responsibilities (82-932). The Commissioner of Agriculture is a member of the Board (82-932). The Director of the WRB is authorized to assist in the prevention of water pollution in areas designated as "scenic river areas" (82-1457). It is a misdemeanor to wilfully deposit excrement or foul matter in any water supply system (1-903). The State Board of Health has the power to regulate the construction and operation of private disposal systems (1-904). Cities are given the authority to condemn land surrounding municipal water supplies for the purpose of protecting the supply from contamination or pollution (11-293).

ADDRESS: Water Resources Board
5th Floor
Jim Thorpe Building
Oklahoma City, Oklahoma 73105
405/521-3947

2. SOLID WASTE

The Department of Health (DOH) administers the Solid Waste Management Act (63-2253). There is also a Solid Waste Management Advisory Committee made up of at least one agricultural representative and a member representing the Soil and Water Conservation districts (63-2254). The DOH may prepare regulations, including a permit system, which will control the disposal of solid waste (63-2258). The definition of solid wastes would include agricultural wastes (63-2253). This section excludes regulation of disposal on one's own land provided that no nuisance be created and that city ordinances not be violated (63-2258). Any dumping of solid waste on another person's property without his permission is illegal (63-2262). The regulations require a permit for all disposal of solid wastes. No person may operate a disposal site extending below the natural water table. Special rules have been promulgated to deal with the disposal of highly putrescible wastes; these include requirements of daily cover, vector and dust control, and maintenance of soil quality.

ADDRESS: Department of Health
Northeast 10th & Stonewall Streets
Oklahoma City, Oklahoma 73105
405/271-5338

3. AIR

The DOH, Air Quality Service and an advisory Air Quality Council (AQC) are jointly responsible for implementing the state's air pollution control program (63-2002). The definition of air contaminants does not include odors (63-2002). Cities and towns are not precluded from enacting ordinances with respect to air pollution that are not in conflict with the state law, nor from enacting ordinances dealing with public nuisance (63-2004). The Oklahoma Clean Air Act does not authorize the DOH to limit, modify or in any way affect the powers, duties or functions of the State Board of Agriculture. The AQC has promulgated regulations to require the taking of reasonable precautions to minimize the emission of visible fugitive dust which would constitute a violation of the ambient air quality standards beyond one's property line. The regulations do not apply to the clearing or preparation of land solely for agricultural purposes.

ADDRESS: Department of Health
Air Quality Service
Northeast 10th & Stonewall Streets
Oklahoma City, Oklahoma 73105
405/271-5220

4. COMMERCIAL FEED AND FERTILIZER

The State Board of Agriculture requires the registration of all commercial feeds (2-8-43). Commercial feed is broadly defined so as to probably include refeeding material (2-8-41). The State Board also requires the registration of all fertilizers (2-8-62). Fertilizers are defined to exclude unmanipulated manure, which is defined to mean substances composed primarily of excreta which have not been processed in any manner (2-8-61).

5. AGRICULTURE

The primary responsibility for the feedlot regulatory program is vested in the State Board of Agriculture under the Oklahoma Feed Yards Act (2-9-201 et seq). There is an advisory board made up of five feedlot operators (2-9-204). The State Board of Agriculture is given rule-making power (9-203). All feedyard operators must obtain licenses from the Board (2-9-205). The Board has the power to investigate complaints about feedlots and to have access to the premises (2-9-206). The statute requires the following general provisions before the Board may issue the license. The feedlot must: a) provide a reasonable method for disposal of excrement; b) provide chemical and scientific control procedures for vector control; c) provide adequate drainage of surface waters from feedyards, and take reasonable action to avoid water pollution; d) provide adequate veterinary services; e) have available for use mechanical means for scraping, cleaning and grading of the yard surfaces, f) provide weather-resistant aprons adjacent to all permanently affixed feed bunks, water tanks and feeding devices; and g) conduct operations in conformity with regulations promulgated by the Board (2-9-210). The regulations provide that waste discharges from feedyards, including reservoirs and disposal areas, must be in conformity with the water quality requirements of the appropriate river basin criteria (Reg. B). Discharges of wastewater from ponds shall be made only for further treatment or disposal. A pond must be capable of retaining runoff of the 24-hour, 10-year rain (Reg. B). Manure disposal may be accomplished with several different techniques, including land disposal, dehydration, depositing in lagoons or settling tanks, stockpiling, moving feedlot waste to other areas for disposal or any other method approved by the State Board (Reg. C). Stockpiled excrement must be so located as to prevent drainage into water bodies (Reg. E). Surface water must be directed into lagoons or diverted to fields to prevent direct drainage into water bodies (Reg. E). Pesticides used for vector control must be registered with the Oklahoma Department of Agriculture or with the USDA.

The State Board also has specific standards for milking barns, stables or parlors, including the requirements that floors be constructed of concrete or other impervious material, that barns have walls and ceiling, and that they must not be over-crowded (63-1-1306). Barns must be kept clean and free of filth. Manure packs must be properly drained and must provide a reasonably firm footing (63-1-1306). Liquid waste must be disposed of in a sanitary manner (63-1-1306). Inspection of the dairy industry is made through the Dairy Division of the State Board of Agriculture (2-7-1). All livestock dealers, as defined in the Federal Act, must keep records and be subject to the regulation of the State Board (2-2-1753). The State Board also has general powers over the animal industry within the state (2-2-4). Permits are required by the Board before garbage may be fed to swine (2-6-22). The premises where the garbage is fed must be kept in a sanitary condition free of unused garbage and waste material. Vector control measures must be practiced (2-6-23). All garbage must be heated to 212 degrees Fahrenheit for 30 minutes (2-6-24). The regulations do not apply to an individual who feeds only his household garbage to his own swine or to an institution where the swine do not leave the premises where the feeding is done (2-7-27). There is an exemption made for feedlot operations being owned by foreign corporations which are otherwise not allowed to operate agricultural installations in Oklahoma (18-954).

ADDRESS: Department of Agriculture
122 State Capitol
Oklahoma City, Oklahoma 73105
405/521-3868

6. NUISANCE

No person may deposit any noxious or toxic substance in any stream, lake or pond or in any place where such substances may be washed into such waters. Persons who violate the statute face a fine of not less than $100 nor more than $500 per day for each violation (7-401). Nuisance is broadly defined by statute to include anything that annoys, injures or endangers the comfort, repose, health or safety of others, or which interferes with the passage of any lake or navigable stream (50-1). Nothing which is done under the express authority of a statute may be deemed to be a nuisance (50-4). Therefore, a feedlot which operates under a State Board permit may not be declared to be a nuisance if it meets the requirements of operation contained in the regulations (50-4). All nuisance may be abated; in the case of a public nuisance, there may be a criminal prosecution (50-8). Cities and towns have the right to define nuisance within their corporate limits (50-16). No slaughterhouse may be located within 1/2 mile of any tract of land that is platted into lots and blocks or within 1/2 mile of any parcel used for, or zoned for, residential use (50-41). Towns and villages may also abate and define nuisance as well as direct the location of slaughterhouses (11-1028). City councils may make regulations to prevent and remove all nuisance within the city (11-665). County health boards, also, may abate nuisance and control sanitary conditions within the county (1-204). City health officials have powers to order the owner of any property to remove a source of filth or insects (63-1-1011). It is unlawful to leave any animal or poultry carcass in any water body or within 1/4 mile of any occupied dwelling (21-1223). Operators of slaughterhouses must keep their premises clean so as to avoid annoying the citizens of the state (21-1225).

7. SOIL AND WATER CONSERVATION

The Oklahoma Conservation Commission is the umbrella state agency dealing with soil conservation; it has mostly advisory powers (82-1501-205). Local districts do not possess authority to promulgate land use regulations (82-1501-501).

8. LAND USE

Counties were recently given the power to plan and zone, but they may do so only after a local referendum (19-865.51-52). There is, however, an exemption made in that the rules and regulations promulgated by the County Planning Commission under this enabling act shall not apply to the erection of farm homes or other usual farm buildings, or to the planting of agricultural crops (19-865.51). Metropolitan city-county planning and zoning is also authorized, but there is a similar exemption for agricultural uses (19-966.18). There is another source of zoning authority for the Board of County Commissioners, which apparently does not exclude agricultural uses from its regulatory powers (19-868.11). City zoning is also authorized without any exemption made for agricultural uses (11-401). Oklahoma does not have a preferential tax assessment system (68-2404).

Oklahoma has not been authorized to administer the National Pollutant Discharge Elimination System.

OREGON

Key to Legal Citation
Ore. Rev. Stat. §____
(§____)
(468.705)

1. WATER

The Department of Environmental Quality (DEQ), Water Quality Control Division is the agency responsible for implementing the state's water pollution control program (468.035). All dischargers into state waters must obtain permits (468.740). Waste from animals falls under the definition of sewage (468.700). The DEQ has promulgated extensive regulations dealing with both the water and solid waste pollution problems of feedlots. In seeking permits, topographic, climatological, hydrological and soil data must be submitted along with the plans and specifications. All waste control facilities must be so constructed and operated that manure, other wastes or wastewater do not enter state waters. In addition to the mandatory regulations, the DEQ has promulgated a set of guidelines for the design and operation of animal waste control facilities. Compliance with the guidelines will in most cases satisfy the requirements of the regulations. Roof and other uncontaminated surface drainage should be diverted from confinement areas

(Reg. 51-055). Where large water use areas are exposed to heavy rainfall, such areas should be covered to minimize wastewater volume. Flushing systems should minimize water use and maximize wastewater reuse. Waste holding lagoons should have sufficient capacity to contain the maximum accumulated rainfall for the estimated period of accumulation (Reg. 51-060). Overflow relief structures should be available to prevent washouts. Where seasonal groundwater levels rise above the bottom of a pond, drain tile should be laid. Manure solids should be collected, stored and utilized in such a manner as to prevent water pollution and minimize the production of flies and odors. Where large accumulations of manure are stored during the winter months, adequate disposal facilities should be provided. Liquid manure irrigation systems should have delivery mains buried. Trucks or tank wagons conveying manure or slurry must be watertight. If slurry is spread by truck, a plan of uniform coverage should be established and no drainage should be allowed when the truck is not in motion acress suitable receiving land (Reg. 51-070). After extensive soil and topographic studies, adequate land must be provided. The vegetative cover on disposal land should be harvested or grazed regularly to prevent weeds. Solid manure should be spread uniformly. Manure solids should not be used as fill material at sites where they could cause surface or groundwater pollution. Good management practices and site location studies should be used to avoid odor problems (51-075). All new and modified operations must submit detailed plans and specifications before they may begin construction (Reg. 51-015). A voluntary 13-man advisory committee made up mainly of producer representatives was formed to resolve problems on site location and operation (Reg. 51-030). They also helped create the regulations. The regulations apply to all confined feeding or holding operations regardless of size.

Oregon's regulations on confined animal feeding or holding operations are included in full in Appendix A of this report.

ADDRESS: Department of Environmental Quality
Water Quality Control Division
1234 S.W. Morrison Street
Portland, Oregon 97205
503/229-5696

2. SOLID WASTE

The DEQ, Solid Waste Division is responsible for implementing the solid waste management program (459.025). Manure is specifically mentioned in the definition of solid waste (459.005). The problem of land application for manures is covered by the DEQ regulations and guidelines mentioned in the previous section. Counties are also authorized to regulate solid waste disposal. They may not enact any ordinance that is in conflict with the DEQ regulations (459.095). Counties are given the specific authority to regulate waste disposal on private property if the situation rises to the level of a public nuisance (459.120). However, there is an exception for agricultural operations and the raising of fowls and livestock.

ADDRESS: Department of Environmental Quality
Solid Waste Division
1234 S.W. Morrison Street
Portland, Oregon 97205
503/229-5696

3. AIR

The DEQ, Air Quality Division is responsible for implementing the state's air pollution control program (468.035). Air contaminants and air pollutants are defined to include both fugitive dust and odors (468.275). The DEQ has promulgated regulations requiring the use of reasonable precautions to minimize the emission of fugitive dust, which are applicable to feedlot operations where nuisance-type conditions arise. To date, they have not been applied to any feedlot operation. Specific odor regulations have not been promulgated.

ADDRESS: Department of Environmental Quality
Air Quality Division
1234 S.W. Morrison Street
Portland, Oregon 97205
503/229-5749

4. COMMERCIAL FEED AND FERTILIZER

All commercial feed that is distributed must be registered with the Department of Agriculture (633.015). The Department has promulgated regulations dealing with the use of processed animal waste (PAW), which is defined to include dried poultry waste (DPW), dried poultry litter (DPL) and dried ruminant waste (DRW). PAW may not contain levels of drugs, pesticides or other toxic contaminants deemed harmful to the animals. The final moisture content may not exceed 12%. PAW may not be fed to dairy cows or to other animals within 15 days of slaughter. DPW is defined to include only waste that is processed from undiluted poultry excreta collected from caged layer flocks. DPW may not contain less than 25% crude protein, and not more than 15% crude fiber or 30% ash. DPL is a combination of excreta and litter; it must contain at least 18% protein. DRW is bovine excreta free of extraneous material. It must contain at least 12% crude protein, and not more than 30% crude fiber or 20% ash. At the present time, little refeeding is occurring because of relatively high costs. Some pelletized manure operations have, however, been started. The Department also requires the registration of commercial fertilizers distributed in the state (633.361). Commercial fertilizers are so defined as to exclude unfortified animal manures (633.310).

5. AGRICULTURE

The feeding of garbage to swine is prohibited unless the operator obtains a state license (600.020). The license may not be issued unless the swine feeding operation is housed in a sanitary structure where manure and other refuse may not be allowed to accumulate (600.070). The operation must be so conducted as not to create a public nuisance (600.070). No license is required if an individual feeds his own household garbage to his own swine (600.110). The Department of Agriculture has not played an active role in feedlot controls, deferring to the DEQ and their regulations. It does, however, have authority to exercise general sanitary controls over livestock within the state and also controls the poultry industry (596.010). It does require that all feedlot operators be licensed by the Department (604.610). It also has the power to control the minimum standards of construction and methods of operation. It apparently uses the DEQ regulations, which it had a role in producing, as the minimum standards. The Department licenses and regulates dairy operations (621.161). In addition, cities may inspect dairy operations for sanitary conditions (621.291).

6. NUISANCE

It is unlawful for any person to dispose of an offensive substance in any water body or on land; however, a specific exception is made for the storage and spreading of manure for agricultural purposes (164.785). Both the State Board of Health and local boards have the authority to abate any nuisance which constitutes a threat to the public health (431.140).

7. SOIL AND WATER CONSERVATION

The State Soil and Water Conservation Committee has overall advisory powers (568.260). Local districts are authorized to formulate land use regulations (568.630). Before these regulations become enforceable they must be adopted by the district residents in an election. The regulations may include provisions for gully control, cultural and cropping practices, and other suitable measures (568.680).

8. LAND USE

Oregon has perhaps the most comprehensive system for local county and statewide planning of any state. Both cities and counties have the authority to zone and plan (203.035, 277.020). County zoning is specifically empowered to create farm use zones, including feedlot operations (215.023). A purpose of the zoning ordinance would be to zone an area for farm use exclusively to preserve open space and hold down the pressure to turn farmlands into urban development (215.243). The local ordinances may not restrict any kind of farm use where a noisome condition, i.e., dust, air pollution, odor, noise, etc. does not extend beyond the boundaries of the farm use zone (215.253). This, however, does not affect either the city's or county's ability to abate nuisance if a threat to the public health exists (215.253). The State Land Conservation and Development Commission (LCDC) has the power to issue state permits for activities of statewide significance (197.040). The LCDC must also adopt statewide goals for land use, including agricultural (197.230). Oregon has a system of preferential tax assessment for agricultural and open space land (308.370 et seq). The preference may not be given without approval of local land use authorities. A ten-year rollback tax is imposed upon a change in use.

Oregon was authorized to administer the NPDES on September 26, 1975. The DEQ is the administering agency.

PENNSYLVANIA

Key to Legal Citation
Pa. Stat. Ann. tit____, §____ (Purdon)
(tit____ §____)
(71-510)

1. WATER

The Department of Environmental Resources (DER), Bureau of Water Quality Management is responsible for implementing the state's water pollution control program (71-510-1). Rule-making for water pollution control is vested with an Environmental Quality Board (EQB) (71-510-21). The EQB consists of state officials, including the Secretary of Agriculture, and several public members (71-180-1). The statutes basically require that all dischargers into natural waters must obtain permits (35-691-5). The DER does not have any water pollution program dealing specifically with the problem of water pollution from confined animal feedlot operations. Pennsylvania has not received NPDES authority, so it is the EPA which gives the larger operations their permits. Since all sewage systems require permits by administrative policy, and the definition of sewage would include animal manure, it would appear that agricultural uses could be covered (35-750.1, 750.7). The DER apparently allows the EPA or the Division of Solid Waste Management to regulate feedlot operations where discharges into state waters are involved. The DER may, by regulation, require permits for activities that may cause water pollution or a nuisance (35-691.402).

ADDRESS: Department of Environmental Resources
Bureau of Water Quality Management
Harrisburg, Pennsylvania 17120
717/787-2666

2. SOLID WASTE

The DER, Division of Solid Waste Management is responsible for implementing the solid waste pollution control program (35-6003). Solid waste is defined to include agricultural wastes (35-6003). An advisory committee, including members of the public and of the private agricultural sector, was created to aid the DEP in the promulgation of rules and regulations (35-6004). The state prohibits the dumping or depositing of any solid waste onto land surfaces or into the waters without a permit (35-6009). No solid waste may be collected, stored, transported, or disposed of in a manner that would create a public nuisance (35-6009). The regulations define agricultural waste but do not address the specific problem (Reg. 75.1). Furthermore, permit requirements are waived for farmers utilizing "normal farming operations" (Reg. 75.31). The major thrust of the regulating program is the municipal solid waste disposal problem; the delineation of minimum performance standards for sanitary landfills constitutes the major part of the program. Vector control procedures must be utilized to prevent health hazards (Reg. 75.50). Groundwater pollution must be avoided by analysis of soil strata in the disposal area (Reg. 75.84). The regulations also deal with the odor problem and define air pollution to include odors (Reg. 75.1).

ADDRESS: Department of Environmental Resources
Division of Solid Waste Management
P. O. Box 2063
Harrisburg, Pennsylvania 17120
717/787-7381

3. AIR

The DER and the EQB are the agencies responsible for implementing the state's air pollution control program (35-4004). Air contaminant is defined to specifically include odors (35-4003). All new sources of air pollution are required to obtain permits (35-4006.1). The DER regulations prohibit the emission of fugitive dust or contaminants from any source, except for the clearing of land, tilling or applying amendments to the soil, and preparing cover crops for incorporation into the soil. Although exempted from the general prohibition, these activities may not emit dust that is visible at the property line or which exceeds 150 particles/cubic centimeter. The DER has not enacted any odor regulations. The DER, however, is not authorized to interfere if a local air pollution control agency has been approved. In addition, local governments may enact their own ordinances dealing with air pollution provided that they are not less stringent than the state rules (35-4012).

ADDRESS: Department of Environmental Resources
Bureau of Air Quality Control
P. O. Box 2063
Harrisburg, Pennsylvania 17120
717/787-9702

4. COMMERCIAL FEED AND FERTILIZER

Pennsylvania has a commercial feed law requiring proper labeling and registration of all feeds (3-58.4). The Department of Agriculture oversees the registration requirements. There are no regulations that are applicable to the feedlot operation. Fertilizers are also regulated by the Department of Agriculture, but unmanipulated animal manures are excluded from the definition of fertilizer materials (3-68.2).

5. AGRICULTURE

The Department of Agriculture regulates the feeding of garbage to swine (3-452.1). Licenses are required for all garbage feeding operations; the feeding premises must have water-tight floors and be properly drained so as to be maintained in a sanitary condition. Manure must be disposed of regularly (3-452.9). All garbage must be boiled before use (3-452.10). All garbage feeding plants must be maintained in a reasonably sanitary condition, and approved methods to exterminate vectors must be employed (3-452.13). The Department of Agriculture prohibits the sale of horse manure unless it be sold without any kind of foreign substance or water added (3-84). Stockyards must be kept in a sanitary condition (3-451.1). Licenses are required for dealers and brokers in domestic animals, but there is an express exemption for farmers who receive animals for grazing and feeding purposes (3-431). The Department may revoke licenses of dairy farmers for unsanitary conditions. The State Livestock Sanitary Board is empowered to enter into and inspect premises for sanitary conditions in order to prevent disease of animals and poultry (71-1221).

6. NUISANCE

On the state level, the DER has the power to declare an unsanitary condition to be a public nuisance (71-510-17). It may order the nuisance abated or removed, and may recover expenses of abatement if the property owner refuses to remove it himself (71-510-17). Counties have relatively significant nuisance abatement powers through the county health departments (16-12026). They have specific authority to determine whether the keeping or slaughtering of stock animals within the county is or may become detrimental to the public health. The Board may create a permit system for such operations at its discretion (16-2192). Counties have powers only in the unincorporated and non-township areas (16-12013). Counties do have the express authority to suppress garbage disposal plants that create noxious odors (16-5185). Township sanitary boards also have the authority to inspect for and abate any nuisance, including hog pens, stables and stableyards (53-66958). First-class townships may regulate manure pits, slaughterhouses and pigpens to prohibit or to remove any noxious business (53-56526). Boroughs have the authority to regulate the accumulation of manure, compost and the like, as well as to prohibit the keeping of hogs or other livestock within their boundaries (53-46202). Boroughs may also abate nuisance (53-10608). First-class cities may regulate stables for all stock but cattle, including the transportation and storage of manure (53-14451-14452). Second-class cities, also, may abate any nuisance that impairs health (53-24562). Third-class cities may determine whether the keeping of animals may constitute a nuisance and install a permit system for the raising of such livectock (53-37308).

7. SOIL AND WATER CONSERVATION

There is a State Soil Conservation Commission (3-852) which oversees the county-wide Soil Conservation Districts (SCD's) (3-853). The county SCD is limited in powers to mostly planning research and assistance (3-857). They do not possess land use authority. An erosion control regulating system is operated by the Sanitary Water Board (35-691.1 et seq). All earth moving activities must be conducted in such a manner as to minimize accelerated erosion.

8. LAND USE

The state has an open space law for the benefit of the water and land resources and of the agricultural farmland of the state (32-5002). Cities and counties have the express authority to zone and plan with no exceptions being made for agricultural buildings or uses (53-10601, 10602). Pennsylvania allows land presently devoted to agricultural use to be taxed at agricultural use value (72-5490.3). A penalty for past taxes is imposed upon a change in use (72-5490.8).

The Pennsylvania program has not been approved for the National Pollutant Discharge Elimination System.

RHODE ISLAND

Key to Legal Citation
R.I. Gen. Laws §____
(§____)
(46-12-3)

1. WATER

The Department of Health (DOH), Division of Water Supply and Pollution Control is responsible for implementing the state's water pollution control program (46-12-3). Sewage is defined by statute to include any animal excremental liquid or substance, offal or waste (46-12-1). "Pollution" is defined to include the entry or discharge of sewage into the waters of the state (46-12-1). No discharge of sewage may take place without an order from the DOH (46-12-4). It is unlawful to cause pollution or to place sewage in a location where it is likely to cause pollution (46-12-4). No person may discharge any substance into a source of domestic water or allow drainage from one's land that would pollute any drinking water supply (46-14-1). A law, repealed in 1970, prohibited the transportation and deposit of animal manure within 500 feet of a water supply or directly into any waters of the state (46-14-7). The DOH has not enacted any regulations that would specifically apply to the feedlot operation. The DOH has handled, on a case-by-case basis, complaints about a number of feeding operations causing water pollution. In one instance, the DOH ordered a large piggery to install a lagoon with subsequent land application to avoid pollution of a nearby domestic water supply. The operator acceded to the order only after litigation was begun. The operator then began to transport the manure to agricultural lands in Massachusetts to avoid the otherwise inadequate land base for applying the wastewater. The DOH, as a general rule, requires the installation of some type of holding basin, followed by dewatering, burial or land disposal.

ADDRESS: Department of Health
Division of Water Supply & Pollution Control
75 Davis Street
Providence, Rhode Island 02908
401/277-2234

2. SOLID WASTE

The DOH, Division of Solid Waste Management administers part of the state's solid waste management program (46-12-34). If any individual locates an area for disposal of solid wastes within 200 feet of a watercourse, the owner must submit to the DOH, at least every 60 days, a report on the water quality of the water body taken both upstream and downstream of the landfill area (46-12-34). The DOH may require permits prior to the disposal of solid wastes (23-46-8). Solid wastes are defined by regulation to include agricultural wastes, but the thrust of the present program is towards the municipal sanitary landfill operation. The regulations require minimum performance levels for solid waste disposal facilities. General operating standards require vector control, prevention of groundwater pollution, and the minimization of odors and blowing dust. Solid waste management is also conducted by an independent state corporation entitled The Solid Waste Management Corporation (SWMC) (23-46.1-6). The Corporation both plans and constructs solid waste disposal facilities (23-46.1-7). In the statutes creating the SWMC, solid waste is again defined to include waste from agricultural sources (23-46.1-5).

ADDRESS: Department of Health
Division of Solid Waste Management
75 Davis Street
Providence, Rhode Island 02908
401/277-2808

3. AIR

The DOH, Division of Air Pollution Control is responsible for implementing the state's air pollution control program (23-25-5). There is also a State Air Pollution Advisory Board (23-25-4). The regulations prohibit the emission of fugitive particulate matter without taking reasonable precautions to prevent the emission. There are no odor emission regulations.

ADDRESS: Department of Health
Division of Air Pollution Control
75 Davis Street
Providence, Rhode Island 02908
401/277-2808

4. COMMERCIAL FEED AND FERTILIZER

Commercial feeds must be registered with the Department of Natural Resources (DNR) (4-2-3). Feeds used in mixing, or furnished by the consumer for his own use and not sold commercially, are exempted from the registration and labelling requirements (4-2-1). The DNR also requires the registration of all commercial fertilizers, including mixed fertilizers (2-7-4). Commercial fertilizers do not include animal manures that have not been dried or otherwise artificially treated (2-7-3).

5. AGRICULTURE

The duties of the Department of Agriculture were transferred to the DNR, but the DOH is the principal regulating agency (42-17.1-2). No person may feed garbage to swine without securing a permit from the DOH (4-3-3). Before a permit will be issued, the feeder must show that a) the feeding area is equipped with a cement base and is capable of being cleaned daily, b) the housing meets existing sanitary and humane standards, and c) the premises are kept clean and sanitary (4-3-5). All garbage must be cooked to at least 212 degrees Fahrenheit for a period of 30 minutes (4-3-6). No swine may be kept in any town or fed swill, offal or other decaying substances in any town, except in such places as shall be designated by the town council (4-3-12). The DOH has general regulatory authority over the environmental conditions surrounding the dairy farm operation (21-2-23). The DOH usually requires small dairy operators to follow DOH guidelines for individual disposal systems to prevent groundwater pollution. This normally requires drainage from the barn into some type of subsurface seepage or leachate system which is designed to avoid water pollution. The DOH also requires that all persons who buy, sell or exchange bovine animals, except for immediate slaughter, must first obtain a license from the DOH (4-7-1). The licensing provisions do not apply to a producer of cattle who does not go from place to place, buying, selling or transporting cattle (4-7-18). A similar license, with an exemption for the farmer, is required for those who deal in or transport poultry (4-10-3).

6. NUISANCE

The attorney general or any citizen of the state may file an action in the name of the state seeking to abate any nuisance conditions (10-1-1). Cities and towns may regulate the location and maintenance of all places in their jurisdictions for keeping animals, and may enact rules and regulations dealing with the time and manner of removing manure therefrom (23-19-1). Any city or town may order the owner of a premise to remove, at his own expense, any nuisance or source of filth found thereon (23-19-4). If the owner does not remove it, the city may sue the owner for reimbursement of the clean-up costs (23-19-6). Any city or town may establish such regulations as it deems proper in reference to cattle or other animals, including their slaughtering (23-19-9). Noxious trades, such as slaughtering animals, may be prohibited by a city (23-24-1). Any slaughterhouse, rendering establishment or garbage plant located within 300 feet of a public park or hospital is declared to be a public nuisance (11-30-12). No owner of land may burn any refuse or decaying animal substance in such a manner that it becomes a nuisance (11-30-13). Any city or town may enact ordinances which seek to abate nuisance (23-19-7).

7. SOIL CONSERVATION

There is a State Conservation Committee established within the DNR with mostly advisory powers (2-4-3). Local soil conservation districts may be created by petition or by act of the legislature (2-4-7, 2-4-8). They do not possess any direct land use authority.

8. LAND USE

The DNR is authorized to establish a program to protect the coastal wetlands of the state (2-1-15). It may restrict land uses to those which are compatible with the public policy of the state to preserve the purity and integrity of the coastal wetlands (2-1-15). There is a mandatory planning requirement for all local governments (45-22-1). Included within the Planning Board's responsibilities are the assessment of land use, environmental protection and natural resource conservation (45-22-7). Cities and towns have the power to zone with no exception being made for agricultural uses (45-24-1). Cities or towns may also create conservation commissions to promote and develop natural resources (45-35-1). Conservation of open space by the protection of natural streams, conservation of soils or wetlands, and enhancement of scenic resources are cited specifically (45-36-1). Land that is classified as farmland or open space land (44-27-3) is entitled to be assessed at actual use value (44-5-12). Upon a change of use leading to a disqualification from the farmland category, the owner must pay a rollback tax equal to the difference between the taxes paid in the prior two years and the amount that would have been owed if the land had been assessed at fair market value (44-5-39).

Rhode Island has not been authorized to administer the National Pollutant Discharge Elimination System.

SOUTH CAROLINA

Key to Legal Citation
S.C. Code §____
(§____)
(63-195.2)

1. WATER

The Department of Health and Environmental Control (DHEC), Pollution Control Authority (PCA) is responsible for implementing the state's water pollution control program (63-195.2). The PCA consists of state officials, one of whom is the State Soil and Water Conservation Commissioner (63-195.3). There is also a Board of Health and Environmental Sciences which has rule-making authority (63-195.9). Agricultural wastes are not specifically mentioned in the statute and could possibly fall under either the definition of sewage or that of other wastes (63-195.1). The regulatory scheme is basically a permitting system with both an NPDES and a state permit requirement. A state permit is required for all waste discharges into subsurface waters and for all treatment works which are defined to include all lagoons and sanitary landfills. If a discharge of sewage is involved, or if construction of a treatment facility is planned, then the feedlot operator must submit a complete engineering report prior to his receipt of a construction permit. Future construction of any waste treatment facility must be preceded by PCA approval after submitting an extensive report on the planned operation.

ADDRESS: Department of Health and Environmental Control
Bureau of Wastewater and Stream Quality Control
2600 Bull Street
Columbia, South Carolina 29201
803/758-5483

2. SOLID WASTE

Although there is no direct mention of solid waste management in the Pollution Control Act, the PCA has promulgated regulations dealing with the solid waste disposal problem based on the interrelationship among solid waste disposal, air pollution and water pollution. Solid waste is defined for purposes of the regulations to include agricultural wastes. The regulations, however, are geared toward the operation of a municipal solid waste disposal operation and are not particularly pertinent to the agricultural problems. Disposal of waste sludges and liquids must be accomplished in a manner that minimizes odors and water pollution.

ADDRESS: Department of Health and Environmental Control
Solid Waste Management Division
2600 Bull Street
Columbia, South Carolina 29201
803/758-5544

3. AIR

The DHEC and the PCA are also given primary responsibility for implementing the air pollution control program (63-195.7). Although the regulatory system is primarily a permitting system, there have been no attempts to promulgate regulations dealing with the feedlot type operation (63-195.14). The PCA is given the authority to delegate responsibility for administering the air pollution program to counties and cities (63-195.34). Air contaminants are defined to include fugitive dust, but odors are not directly mentioned. Normally, construction and operating permits are required for all new sources of air pollution. There are no odor or fugitive dust regulations.

ADDRESS: Department of Health and Environmental Control
Bureau of Air Quality Control
2600 Bull Street
Columbia, South Carolina 29201
803/758-5681

4. COMMERCIAL FEED AND FERTILIZER

There is a commercial fertilizer law, but stockpen and barnyard manure is excluded from the definition of fertilizer unless the material has been dried or manipulated and is valued at more than $8.00/ton (3-502). All commerical fertilizers must be registered with the Board of Trustees of Clemson University. The commercial feed law requires proper labeling of all feeds after registration with the Commissioner of Agriculture (3-621). The Commissioner has promulgated both feed and fertilizer regulations which are not applicable to the feedlot operation. The food and cosmetic act would also affect commercial feeds in that it prohibits the sale or manufacture of misbranded or adulterated feed (32-1526.1).

5. AGRICULTURE

All operators of livestock markets, which are defined to include assembly pens, stockyards and livestock dealers, must obtain permits from the State Veterinarian (6-332). The facilities must be maintained in a sanitary condition and are subject to inspection by state officials (6-337). Garbage may not be fed to swine, except for household garbage fed by the owner of the swine (6-522). The State Board of Health has the authority to investigate the sanitary conditions of dairies (32-8). Dairy barns must be licensed by the Board and are to be inspected at least once every six months. Milking barn floors must be of an impervious material and must be kept clean. No swine or fowl are allowed in the barn or stable. The cow yard must be graded and drained and no standing pools of water or accumulations of manure may be allowed to occur. All manure must be removed, stored or disposed of in such a manner as to prevent the breeding of flies or access by the dairy cows.

6. NUISANCE

The State Board of Health has the primary responsibility for controlling and regulating nuisance (32-2). Local boards of health are supervised by the state (32-12). The State Board's activities do not, however, limit the right of any individual to bring an action to abate a nuisance (32-10). The State Board has promulgated regulations defining nuisance to include the feedlot type operation where excessive flies, rodents or other vectors are produced. The State Board has also promulgated regulations dealing with minimum sanitary conditions at caged layer poultry houses. The regulations require only that each operator utilize good management practices to minimize fly and rodent infestation.

7. SOIL AND WATER CONSERVATION

The State Land Resources Conservation Commission oversees the operation of the local districts (63-61). Local soil and water conservation districts may exercise land use authority if a voter referendum is held prior to the imposition of the land use controls (63-142). A two-thirds majority is required (63-144). Counties are authorized to establish comprehensive sediment control programs (63-195.02). Agricultural activities, however, are exempted from the operation of the programs.

8. LAND USE

Cities have the power to plan and zone but only within their territorial boundaries (47-1002). Counties containing a city with a population of over 70,000 have the right to zone and to include agricultural uses (14-353). Planning in the unincorporated areas is also allowed (14-357.1). Under the Scenic Rivers Act, land use practices in the vicinity of scenic rivers may be controlled (70-45.9). Although agricultural practices are encouraged, all new farm buildings must be constructed in a way that is compatible with the scenic surroundings of the river. The South Carolina Wildlife and Marine Resources Department operates this program (70-45.11). South Carolina does not have a system of preferential tax assessment for agricultural land (65-1648).

South Carolina was authorized to administer the NPDES on July 3, 1975. The DHEC is the administering agency.

SOUTH DAKOTA

Key to Legal Citation
S.D. Compiled Laws Ann. §____
(§____)
(46-25-25)

1. WATER

The Department of Environmental Protection (DEP), Division of Water Quality is the agency responsible for implementing the state's water pollution control program (46-25-25). Agricultural wastes are clearly included in the definition of pollutants which may not be discharged into the water (46-25-24). Agricultural wastes would also fall under the general definition of wastes (46-25-24). Apparently the DEP has no regulations other than those prescribed by the US EPA. Discharges are illegal unless by permit (46-25-39, 40, 45). The DEP may require submission of plans and specifications (46-25-47). The DEP is authorized to make grants of up to $3,000 to livestock feedlots for pollution control facilities (46-25-102, 104). The DEP and the Board of Environmental Protection determine the relative need and priority of livestock water pollution control projects (46-25-106). In 1973, $100,000 was appropriated for the program (46-25-102). The Water Rights Commission controls the use of water but not its quality (46-2-1.1).

ADDRESS: Department of Environmental Protection
Division of Water Quality
Joe Foss Building
Pierre, South Dakota 57501
605/224-3351

2. SOLID WASTE

The DEP, Solid Waste Program is responsible for implementing the state's solid waste management activities program (34-16B-3.1). The definition of solid waste includes agricultural wastes but does not include "common water pollutants" (34-16B-2). The DEP may require a permit for solid waste disposal sites (34-16B-8). Counties must develop solid waste management plans (34-16B-7). The program would be more applicable to non-agricultural wastes (7-33-6). A farmer depositing waste from "normal farming operations" on his own land, provided that it does not create a nuisance or violate a local ordinance, is exempt from the regulations and the permit requirements of the DEP (34-16B-35).

ADDRESS: Department of Environmental Protection
Solid Waste Program
Joe Foss Building
Pierre, South Dakota 57501
605/224-3351

3. AIR

The DEP, Air Quality Control Section is the agency responsible for implementing the air pollution control program (34-16A-2). Air contaminants are specifically defined to include odorous substances and particulate matter (34-16A-2). A permit system is created for new sources (34-16A-21). Regulatory powers may be delegated to municipal and county agencies (34-16A-41). The DEP regulations prescribe the procedure to be followed for abating odorous emissions. If five or more complaints are received, the DEP must investigate. The odor is deemed to be objectionable only if a majority of the members of a five-person panel determine that the odor tends to be unreasonably injurious to human health or welfare. The emitter must take reasonable steps, as required by the DEP, to control the objectionable odor.

ADDRESS: Department of Environmental Protection
Air Quality Control Section
Joe Foss Building
Pierre, South Dakota 57501
605/224-3351

4. COMMERCIAL FEED AND FERTILIZER

All commercial feed must be registered with the Department of Agriculture prior to distribution (39-14-3). All persons who manufacture feed must also be registered (39-14-40). The Department does not have any regulations regarding the use of animal waste in feed, but believes that under present regulations such use would be illegal (personal communication). At least one private firm has sought permission to reuse animal waste as feed. The Department requires the registration of all commercial fertilizers prior to sale (38-19-2). Unmanipulated animal manures are not deemed to be fertilizers (38-19-1). "Soil amendments", also, do not include unmanipulated manures (38-19A-1).

5. AGRICULTURE

The Department of Agriculture has assumed the duties of the Livestock Sanitary Board in inspecting and regulating the livestock industry, including poultry (1-41-5). All feedlots using medicated feed must be licensed. Livestock dealers must obtain licenses, (40-15A-3) but farmers and feeders of livestock other than swine are exempted (40-15A-2). Swine dealers must also be licensed without any exemptions (40-16-2). Compliance with sanitary regulations is a prerequisite for obtaining a swine dealer's permit (40-16-9, 10, 11). Garbage may not be fed to livestock (40-10-1). Garbage is defined to include accumulations of animal refuse (40-10-10).

6. NUISANCE

The State Public Health Advisory Committee has authority to control public nuisance and sewage disposal (34-1-17). This power is shared with municipalities (9-29-13). Cities may abate nuisance up to one mile outside the city limits (9-29-1). A court decision has upheld the validity of a city ordinance prohibiting the maintenance of stockyards within the city. Stables and slaughterhouses are under direct municipal licensing control, as are operations that pollute the water (9-32-10). Nuisance is broadly defined by statute and several cases have dealt with stockyards (21-10-1).

7. SOIL AND WATER CONSERVATION

The Division of Conservation has advisory powers over the local soil and water conservation districts (38-7-3). Local districts may enact land use ordinances after a local referendum approves such a grant of authority (38-8-69). Land use regulations may include provisions requiring the retirement from cultivation of highly erosive areas (38-8-67). South Dakota has recently enacted a Soil Erosion and Sediment Law which grants to the State Conservation Committee the responsibility for creating guidelines for the assessment of erosion losses and the provision of techniques for stopping the losses.

8. LAND USE

Cities have the power to plan and zone (11-4-1). Counties have similar powers with no general agricultural exception (11-2-12, 14). South Dakota has a system of preferential tax assessment for agricultural land (10-6-31). For purposes of school taxes, all property is classified as agricultural or as non-agricultural land (10-6-31). Agricultural land is to be valued without regard to zoning, (10-6-31.1) and at agricultural use value, rather than at fair market value (10-6-33.1). There are no provisions for rollback taxes upon a change in use.

South Dakota has not been authorized to administer the National Pollutant Discharge Elimination System.

TENNESSEE

Key to Legal Citation
Tenn. Code Ann. §____
(§____)
(70-3-30)

1. WATER

The Department of Public Health (DPH), Bureau of Environmental Health Services, Division of Water Quality Control and the Water Quality Control Board (WQCB) are responsible for implementing the state's water pollution control program (70-329). The WQCB is the rule-making agency (70-328). The Commissioner of Agriculture is an ex-officio member of the WQCB (70-327). Agricultural wastes fall under the definition of sewage (70-326). All dischargers of sewage and operators of treatment works must obtain permits (70-330). By regulation, all plans and specifications for sewage treatment works must be submitted to the DPH. The DPH, the US SCS and the University of Tennessee have prepared a detailed technical guide (TG) setting minimum engineering standards for animal waste management systems, giving general design criteria and recommending facilities. Normally, waste management systems must contain structural works to divert uncontaminated runoff, structural works to convey wastes from their source to the disposal site, facilities to store and dispose of waste, and agricultural land for spreading solid and liquid wastes. The design criteria set as a minimum standard for diversion ponds the holding of runoff from the 25-year, 24-hour storm. Wash and flush type operations are also covered with recommendations of slope, material and pipe size. Anaerobic lagoons are recommended where animals are concentrated and runoff is minimal. They should not be used where it is desired to return the waste to surrounding farm land. Because of odors, anaerobic lagoons should be located close to the source of waste but not close to the owner's or other residences. Minimum sizes are given for lagoons, depending on the number and weight of the animals. Holding tanks and storage facilities are also covered by the TG. The DPH requires a review of the plans and specifications for animal waste management systems. Any individual who causes pollution or who refuses to furnish information about water pollution is guilty of a misdemeanor (70-336). A defense of inability to pay is specifically excluded from available defenses to a charge of water pollution (70-336). Further controls may be placed on animal feedlot operations by the Tennessee River Basin's Water Pollution Control Commission, an interstate compact organization dealing with water problems in the basin (70-1902).

ADDRESS: Department of Public Health
Bureau of Environmental Health Services
Division of Water Quality Control
621 Cordell Hull Building
Nashville, Tennessee 37219
615/741-2275

2. SOLID WASTE

The DPH, Sanitation and Waste Management Division is responsible for implementing the state's solid waste disposal program (53-4303). Solid wastes are so defined as to include wastes from agricultural operations (53-4303). Wastes may not be disposed of in water, incinerated or otherwise disposed of in a manner that would create a public nuisance (53-4304). A specific exception is given the operator who disposes of household wastes on his own land provided that a public nuisance is not created (53-4310). Regulatory authority may be delegated by the DPH to local boards of health (53-4308). The primary thrust of the statute would appear to affect urban, not feedlot, waste disposal systems, although by the express language of the statute feedlot operators would be covered. The regulations require a state permit for all solid waste disposal systems, with no exception being made for agricultural operations.

ADDRESS: Department of Public Health
Sanitation and Solid Waste Management
Division
Cordell Hull Building
Nashville, Tennessee 37219
615/741-3424

3. AIR

The DPH, Division of Air Pollution Control is responsible for implementing the state's air pollution control program (53-4312). The definition of air contaminants does not specifically include odors (53-4309). The DPH must consider economic factors in enforcing the regulations (53-4313). Local air pollution programs may co-exist with the state program (53-3422). The DPH requires the use of reasonable precautions to prevent the emission of fugitive particulate matter. The standard for fugitive dust is that the visible emissions must not extend beyond the property line for five minutes in any hour or for 20 minutes in any day. Equipment used on farms for soil preparation or crop harvesting is exempted from the permit requirement, although it is still bound by a nuisance standard.

ADDRESS: Department of Public Health
Division of Air Pollution Control
Cordell Hull Building
Nashville, Tennessee 37219
615/741-3931

4. COMMERCIAL FEED AND FERTILIZER

Tennessee has two basic regulatory programs for commercial feed, both governed by the Department of Agriculture. All commercial feeds must be registered before they may be sold (44-1121). Feed is broadly defined (44-1100). A feed is deemed to be adulterated if it is unsafe within the definition of Section 406 of the US Food, Drug and Cosmetic Act (44-1124). A second program dealing with all articles used in feeding animals is established in the Tennessee Food, Drug and Cosmetic Act (52-101). The primary prohibition is upon the use of food that is adulterated or contaminated (52-110). All commercial fertilizers must be registered (43-1121). However, unmanipulated animal manures are not included within the definition of commercial fertilizers (43-1123).

5. AGRICULTURE

Garbage may not be fed to swine unless the feeding is done in a manner approved by the Department of Agriculture or is done by an individual to his own swine (44-1004). The Department may inspect any premises where garbage is being fed (44-1006). The Department requires all livestock dealers to obtain state licenses (44-1910). In addition, all dealers must obtain county licenses as well (44-1901). Licenses, which include a requirement that the premises be maintained in a sanitary manner, are also required of hatcheries (44-1807). The DPH is responsible for licensing and inspecting all dairies (52-304).

6. NUISANCE

Nuisance is broadly defined by statute (39-2903). Nuisance may be abated by court action (39-2902). In addition, it is a criminal act to unlawfully dispose of raw sewage (39-2209). Enforcement responsibility is given local health officers (39-2210). County and city health departments are responsible for abating any public nuisance within their jurisdictions (53-501). Cities also have authority to abate any animal-caused nuisance (6-202).

7. SOIL CONSERVATION

The State Soil Conservation Committee has overall advisory powers over local districts (43-1506). Soil conservation districts may exercise land use authority after a referendum has been held granting them that power (43-1519).

8. PLANNING AND ZONING

Counties may zone and plan, including the regulation of agricultural uses (13-401). Except for agricultural lands that are close to highways, airports or public parks, there is an exemption for agricultural uses from the building permit requirements (13-414). Municipal zoning and planning is also allowed (13-701). Extraterritorial city zoning is allowed where there is no county zoning (13-711). There is no agricultural exemption from municipal zoning ordinances. Farm property is assessed at 25% of fair market value, the same ratio as residential property but less than the 45% figure used for industrial and commercial property (67-611).

Tennessee has not been authorized to administer the National Pollutant Discharge Elimination System.

TEXAS

Key to Legal Citation
Tex. Rev. Civ. Stat. Ann. art____

or

Texas [Subject] Code Ann., tit____, §____ (Vernon)
(art____) or (Subject Code ____)
(4477) or (Water Code 21.061)

1. WATER

[Note - The 1977 Texas Legislature enacted a bill that has consolidated the Texas Water Quality Board, Texas Water Development Board and Texas Water Rights Commission into a new super-agency entitled the Department of Water Resources. Internal administration of this agency will be determined by the Executive Director of the Department.]

The Texas Water Quality Board (TWQB) is the agency that is responsible for implementing the water pollution control program (Water Code 21.061). Waste is specifically defined to include agricultural waste, although agricultural wastes are excluded from the definition of sewage (WC 21.003). Agricultural waste is defined to encompass waterborne liquid, gaseous or solid substances that arise from the agricultural industry, including animal feeding pens and lots, structures for housing and feeding agricultural animals, and processing facilities. Agricultural waste is defined to exclude runoff water from irrigation or runoff from rangeland, pastureland or farmland (WC 21.003). The TWQB has a well-defined system for requiring permits for confined animal feeding operations. All feedlots, regardless of size, are requested under the TWQB wastewater control policy to obtain a waste control order. The TWQB has a different set of policies for cattle feeding operations than it does for other types of confined animal feeding operations. A commercial cattle feedlot is defined to include any confined area or enclosure for the feeding of cattle where such enclosure is not used for raising crops and in which no vegetation intended for livestock feeding is grown. The TWQB believes that all operators should obtain the waste discharge order because it is not unduly burdensome. It assures that adequate and workmanlike waste control measures are employed and that there is uniformity of practices. The TWQB recommends that the first step in controlling wastes is to isolate, by ditches, dikes or other suitable structures, all uphill or upstream drainage areas. After this has been accomplished, the downstream drainage, coming directly from the feedlot, can be intercepted and channelled into ponds or lagoons of suitable size. All facilities should be designed, not merely placed by convenience and cost. The TWQB recommends that the use of one or more lagoons is the most feasible method for controlling and retaining runoff water. Total pond capacity should be about 3/4 of the average monthly rainfall occurring during the rainy season. In some cases 24-hour/25-year rainfall capacity will be required. The lagoon should prevent the ordinary release of water; periods of overflow should be kept to a minimum, because they will normally cause a violation of the water quality standards for the receiving stream. The lagoons must be dewatered, cleaned and repaired on a regular basis; thus, there may be a need to have supplemental ponds. Care should be taken to avoid any unreasonable impairment of groundwater caused by the high nitrogen content of cattle feedlot wastes. The TWQB believes that land disposal of the lagoon water for irrigation of pastureland is the most practical method of disposal. Land preparation may be required and runoff from the irrigated land must not create any further water pollution control problems. Irrigation,using lagoon effluent, should be restricted to cattle feed crops; if the use is broadened, local health officials should be contacted. The TWQB notes, but does not recommend any techniques for the disposal of, the residual solid waste matter from the lagoons. The TWQB cautions against the over-zealous use of insecticides and pesticides to kill vectors because of their high toxicity and the occurrence of fish kills.

The TWQB has enacted regulations for the registration of commercial swine production waste control facilities; these regulations apply to operations with 50 or more animal units where the pen area allotted per animal unit is 2,000 sq. ft. or less. The regulations also apply, if the number of animal units equals 20 or more and the pen area allotted is 400 sq. ft. or less, where the operation is located less than five feet/animal unit from a flowing stream or surface water supply. Additionally, the Executive Director of the TWQB is authorized to require any swine operation to obtain a permit in order to prevent environmental damage. All swine facilities must register unless they are under a preexisting waste control order of the TWQB. The regulations provide for design of facilities adequate to prevent pollution of surface waters caused by drainage of waste from a storm producing the 24-hour/25-year rainfall. The TWQB recommends that feedlot waste be isolated from outside surface drainage by dikes or other suitable structures. The lagoon, playa lake or other holding pond must be able to retain all runoff resulting from the 24-hour/25-year rain. The TWQB is also concerned with protection of the groundwater from the holding lagoons. It assumes that groundwater pollution from the lot itself is minimal because of the limited time that the liquid wastes are in contact with the ground. Retention facilities, however, must be built on clay soils or lined with other suitable materials to control seepage. The desirable seepage rate at a potential pond site should be less than 0.1 acre-foot of water per surface acre of pond per year. Existing retention facilities are presumed to meet the criteria unless proven otherwise. The TWQB assumes that all feedlot wastes will be disposed of by spreading on farmlands. Other methods of disposal must be approved by the Executive Director. Disposal must be accomplished so that neither waste nor rainfall will enter any surface drainage features that lead to surface waters. Application rates must be so adjusted that there is no potential hazard to groundwaters. Finally, wastes must be managed to prevent excessive vector problems or nuisance conditions from arising. The TWQB has attempted to enact similar guidelines for dairies and poultry operations. It has been unsuccessful in its attempt and has thus regulated these types of operations solely on a case-by-case basis, usually reacting to complaints or evidence of environmental damage caused by one of these operations. Orders and permits of the TWQB are enforceable by cities if the discharge or violation occurs within municipal boundaries (WC 21.254). The State Department of Health is also authorized to investigate and make recommendations regarding water quality standards (WC 21.260).

ADDRESS: Texas Water Quality Board
P. O. Box 13246
1700 North Congress Avenue
Austin, Texas 78711
512/475-2651

2. SOLID WASTE

Under the Solid Waste Disposal Act, the State Department of Health Resources (DHR) is the agency primarily responsible for dealing with solid waste disposal problems (4477-7). Industrial solid waste is defined to include waste from agricultural operations (4477-7). While the statute would allow the DHR to regulate the disposal of manure by land application, in practice the DHR has deferred to the TWQB, which uses a good-farm-practices standard to judge the validity of any land disposal system. Counties are also authorized to develop solid waste management plans and to regulate and construct disposal systems (4477-8). The dumping of solid waste on public or private property or into any inland or coastal water without the written consent of the owner is declared to be a misdemeanor with a fine of no less than $15 nor more than $200 to be imposed (4477-9). There is a Gulf Coast Waste Disposal Authority in the Houston area which has the power to regulate all aspects of solid waste handling within its jurisdiction (7612d-2). There is also a regulatory scheme to prevent the dumping of solid wastes in disposal wells; this would probably be inapplicable to the feedlot operator (WC 22.002).

ADDRESS: Department of Health Resources
Solid Waste Branch
1100 West 49th Street
Austin, Texas 78756
512/454-3781

3. AIR

The Texas Air Control Board (TACB) is the agency responsible for implementing the air pollution program (4477-5). Air contaminant is defined by statute to include both particulate matter and odor (4477-5). The TACB grants construction and operating permits for new sources of air contaminants (4477-5). The regulations provide that no person shall discharge from any source one or more air contaminants that may tend to be injurious to, or adversely affect human health or welfare, animal life, vegetation or property (Rule 5). Under TACB Regulation VI, all new facilities that may emit air contaminants must submit their plans for approval and permit receipt. The TACB also requires the facility to utilize best available control technology, allowing consideration of economic and technical factors, to reduce or eliminate the emissions, including odor, resulting from the facility (Rule 603.16). The TACB has prepared a Special Project Report on Odor Control Regulations, which details the methods for measuring odor, gives the rules to be applied to odor sources and stresses the need for voluntary compliance by sources of odor. The report also describes nine suits brought by the TACB to abate odorous emissions, largely by feedlot or animal-related operations. In one recent case involving Southwest Livestock and Trucking, which operated a livestock holding facility in Del Rio, Texas, the TACB required the operator to change his waste management techniques, eliminate retained water, clean his lots regularly, and refrain from storing manure on the premises, in order to prevent the unreasonable discharge of odors into the air.

ADDRESS: Texas Air Control Board
8520 Shoal Creek Blvd.
Austin, Texas 78758
512/451-5711

4. COMMERCIAL FEED AND FERTILIZER

Commercial feeds are defined by statute to include any material, other than products produced and sold by farmers, which is used as a feed for animals (3881e). Since manure is not produced by farmers, it is unclear whether refeeding would be allowed; it is, however, apparently being done in several large feedlots in the Tulia area. All feeds must be registered with the Director of the Texas Agricultural Experiment Station (3881e). The statute broadly defines adulterated feed and bars its use (3881e). Commercial fertilizers are so defined as to exclude the excreta of animals and mixtures of such substances for which no claims of grade are made (108a). Fertilizer material also excludes animal excreta. Manipulated manures are defined to include animal excreta for which grade claims are made; in addition, the products in manipulated manure must be identified. All commercial fertilizers must be registered with the Director or State Chemist (108a).

5. AGRICULTURE

Foreign corporations are not allowed to own land or to operate stockyards or meat packing operations. An exception is allowed for the owning and operation of feedlots, which are not considered to come within the definition of raising cattle and owning land therefor (Business Corporations Code 2.01). The Texas Animal Health Commission replaced the Livestock Sanitary Commission in dealing with the prevention of livestock diseases (7009b). It is unlawful for any person to feed garbage to swine unless it has been boiled for at least a 30-minute period. All persons who intend to feed garbage must register with the Texas Animal Health Commission and obtain permits [7014f-1(22a)]. The DHR requires that all renderers be licensed by the state (4477-6). The DHR has the authority to license and inspect dairies (165-3a).

6. NUISANCE

The DHR has general statewide authority in all matters pertaining to the health of the citizens (4419). It may enter and inspect any dairy, slaughterhouse or other public place to enforce the sanitary laws or codes (4420). Both cities and counties also have the authority to appoint local boards of health to deal with similar problems (4435). In counties with a population in excess of 525,000, the maintenance of feedlots or slaughterhouses within 500 feet of an established cemetery is declared to be a nuisance (930a-1). The state sets minimum standards for sanitation and health protection and broadly defined "nuisance" (4477-1). Local health officials may abate any nuisance (4477-1). No waste product or offal may be so stored as to cause either land or water pollution (4477-1). Cities may regulate the depositing of offensive substances within their jurisdiction and may compel the owner of a stable, slaughterhouse or other unwholesome establishment to clean, remove or abate the same (1015). The dumping of refuse, including animal carcasses and other decayable waste, is unlawful (6674v-2).

7. SOIL AND WATER CONSERVATION

There is a statewide Soil and Water Conservation Board with largely advisory and research-oriented powers (165a-4). Local districts may be created by petition and election (165a-4). Districts may adopt land use regulations upon the affirmative vote of the residents of the district (165a-4). Texas also authorizes the creation by petition of Wind Erosion Conservation Districts, which may prevent damage to lands by soil erosion. These are usually county-wide districts (165a-2).

8. ZONING AND PLANNING

Cities have the authority to zone, with no exception being required for agricultural uses (1011a). Counties do not have zoning or planning authority. The Texas constitution authorizes a preferential tax assessment scheme for agricultural land (Art. 8, §1-d). Land devoted to agricultural use is to be assessed at use value only, not fair market value. Upon a change in use, a 3-year rollback tax is imposed for the difference between the tax paid and that which would have been paid under full assessment (Art. 8, §1-d). The 1977 Texas Legislature passed a statute implementing the institutional mandate (7150k). All open space land, including land devoted to the raising of livestock, is to be assessed using an accepted income capitalization method adjusted by the variable interest rate specified by the Federal Land Bank (7150k).

The Texas program has not been approved for the National Pollutant Discharge Elimination System.

UTAH

Key to Legal Citation
Utah Code Ann. §____
(§____)
(73-14-3)

1. WATER

The Department of Social Services (DSS), Division of Health (DOH), and the Committee on Water Pollution (CWP) are responsible for implementing the state's water pollution control program. The CWP consists of industrial and agricultural representatives in addition to members at large (73-14-3). Agricultural wastes would fall under the statutory definition of wastes (73-14-2). Permits are required for all discharges (73-14-5). The construction, installation or modification of any treatment works, including lagoons, requires a permit (73-14-5). All pollution is deemed to be a public nuisance (73-14-5). Under CWP regulations any person who seeks to construct a device for the discharge of wastewater must submit his plans to the Division of Health and obtain a construction permit (Reg. I-3, 4). There are general regulations applicable to sewage treatment plants, waste stabilization ponds and lagoons (Reg. III-83). The DOH does not require feedlots to construct "wastewater treatment works" or to apply for a permit. Feedlots, however, may not discharge wastewater because of the general prohibition against pollution (73-14-5). All Utah feedlots, regardless of size, must abate their discharges. Most feedlot operations comply with the no-discharge requirement by totally containing all animal wastes and process-generated wastewater until these materials can be spread on the land. Between 25% and 50% of Utah feedlots are not in full compliance with the no-discharge rule. The DOH inspects feedlots on a case-by-case basis as time permits. The DOH does review plans and specifications of any feedlot under a DOH mandate to stop the discharging of contaminants into the waters of the state.

ADDRESS: Department of Social Services
Division of Health
Bureau of Water Quality
44 Medical Drive
Salt Lake City, Utah 84113
801/533-6146

2. SOLID WASTES

There are no statutes specifically covering the solid waste management problem. The DOH regulates the disposal of solid wastes through its general authority to prevent water pollution (73-14-1). The DOH regulations define solid waste to include agricultural wastes but the thrust of the program covers the municiapl solid waste problem.

ADDRESS: Department of Social Services
Division of Health
Bureau of Solid Waste Management
44 Medical Drive
Salt Lake City, Utah 84113
801-328-6163

3. AIR

The DOH and the Air Conservation Committee (ACC) are responsible for implementing the state's air pollution control program (26-24-3.1, 26-24-5). As with the CWP, membership on the ACC is earmarked for representatives of various industries, including one representative from the agricultural area (26-24-4). Odor is not included in the definition of an air pollutant (26-24-2). There are no odor or fugitive dust regulations. The DOH has received a small number of nuisance-type complaints due to odors arising from feedlots. Usually, an inspection is made and better management practices are recommended.

ADDRESS: Department of Social Services
Division of Health
Bureau of Air Quality
44 Medical Drive
Salt Lake City, Utah 84113
801/328-6108

4. COMMERCIAL FEED AND FERTILIZER

The Department of Agriculture regulates commercial feeds and fertilizers. Commercial feeds must be registered and must be unadulterated (4-18-13). Commercial fertilizers must also be registered, but an exception is made for unmanipulated animal manures (4-19-2). There is a specific prohibition against the sale of wastes for fertilizer unless they have been treated or processed (4-19-18).

5. AGRICULTURE

The Department of Agriculture has primary responsibility for the enforcement of laws dealing with livestock and dairies (4-1-15). There is a Poultry Improvement Committee made up of industry representatives that advise the Department on regulations dealing with poultry (4-9-1). Yards, pens and other facilities must be kept in a clean and sanitary condition. The Department requires licenses for all quarantined registered feedlots and Utah registered feedlots. The regulations define a quarantined lot as one where the animals are maintained for final feeding in dry lots immediately prior to slaughter. A Utah registered feedlot is a dry lot area for finish feeding on concentrated feed. The thrust of the regulation program is to prevent the spread of animal diseases. The Department also issues licenses to persons seeking to feed garbage to swine (4-20-69.1). All garbage must be boiled for at least 30 minutes (4-20-69.1).

ADDRESS: Department of Agriculture
412 State Capitol
Salt Lake City, Utah 84103
801/533-5421

6. NUISANCE

Nuisance is broadly defined by statute (78-38-1). Odors may cause a nuisance situation to occur, as was declared in a case dealing with an animal rendering plant. Nuisance abatement is entrusted to local boards of health (26-5-5). These are under the aegis of the State Division of Health (26-15-4). Garbage, refuse, offal or other organic waste matter may not be allowed to remain in any street, public place, private premise or water course (26-6-2).

7. SOIL AND WATER CONSERVATION

The State Soil Conservation Commission has largely adivsory powers (62-1-4). Local soil conservation districts may enact land use regulations if they are approved by a majority of the electorate (62-1-9).

8. LAND USE

A city is given the authority to regulate land uses surrounding its waterworks system even if the system extends beyond the boundaries of the city (10-8-15). The city may prevent uses which would threaten pollution in a strip extending 300 feet on each side of the stream. Larger cities may regulate land use within the entire watershed in order to protect the domestic water supply (10-8-15). Livestock, however, must be permitted to graze provided that they remain at least 1,600 feet from any stream or other body of water. A use which threatens the watershed may be declared to be a nuisance and may be abated (10-8-60). Cities may regulate management and construction of dairies and livery stables, both within the municipal boundaries and up to one mile outside the boundaries (10-8-66). A city may prohibit noisome businesses, including pigsties, within its boundaries. This has been held to be applicable to a hog ranch in one law suit. Counties have ordinance authority including land use powers (17-5-50). No exception is made for agricultural uses. Utah permits land devoted to agricultural uses to be assessed at use value (59-5-90). A 5-year rollback tax is assessed when the preferentially assessed property is converted to other than agricultural uses (59-5-91).

Utah has not been authorized to administer the National Pollutant Discharge Elimination System.

VERMONT

Key to Legal Citation
Vt. Stat. Ann. tit___, §___
(tit___, §___)
(51-2822)

1. WATER

The Agency for Environmental Conservation (AEC), Department of Water Resources, is the agency responsible for implementing the state's water pollution control program (51-2822). Agricultural wastes would fall under the statutory definition of wastes (10-1251). The statute prohibits the discharge of any material or wastes into the waters of the state without a permit (10-1259). A specific exemption is made for discharges from the proper application of fertilizer to fields and crops (10-1259). Due to the lack of confined animal feeding operations, Vermont does not have any regulations that are specifically applicable to pollution from animal wastes. Vermont merely enforces the US EPA NPDES regulations for feedlots.

ADDRESS: Agency for Environmental Conservation
Department of Water Resources
State Office Building
Montpelier, Vermont 05602
802/828-3361

2. SOLID WASTE

The AEC and State Board of Health are jointly responsible for implementing the state's solid waste management program (24-2201a). The State Board sets minimum standards for sanitary landfills in the state. A regulation of the State Board requires that animal wastes from slaughterhouses that are mixed with floor sweepings must be buried within two hours of delivery at the disposal site. The disposal area must be separate from the general disposal area and must be approved by the AEC. Such area must be fenced off and 12 inches of compatible cover soil must be applied at the end of each day of disposal. The regulations seem to exclude animal wastes from the definition of garbage or refuse and thus from the State Board's regulatory powers. Cities are empowered to operate sanitary landfills (24-2202). The dumping of garbage or other noxious things within 300 feet of other private or public property, into the waters, or on the shores in prohibited (24-2201). There is an exemption for dumping solid waste from farming operations insofar as the requirements of a 300-foot limitation and of screening of visibility from a highway are concerned (24-2201).

ADDRESS: State Board of Health
115 Colchester Avenue
Burlington, Vermont 05446
802/862-5701

Agency for Environmental Conservation
Air and Solid Waste Program
P. O. Box 439
Montpelier, Vermont 05602
802/828-3395

3. AIR

The AEC is responsible for implementing the state's air pollution control program (10-552). The definition of air contaminant includes odorous substances (10-552). The AEC has promulgated regulations dealing with the prohibition of nuisance and odor (Reg. 5-241). There is a blanket prohibition against the emission of objectionable odors beyond one's property line (Reg. 5-241). No technique is specified for the measurement of the odors. The odor regulations are enforced solely on a citizen complaint basis. Reasonable precautions must be taken to avoid fugitive dust emissions in the handling, transport or storing of any materials.

ADDRESS: Agency for Environmental Conservation
Air Pollution Control Section
State Office Building
Montpelier, Vermont 05602
802/828-3395

4. COMMERCIAL FEED AND FERTILIZER

The Department of Agriculture requires the registration of all commercial feeds (6-292-3). All feeds which are distributed (which entails selling, bartering or merely supplying) are covered by the registration requirement (6-291). Fertilizer is so defined as to exclude unmanipulated animal manures (6-211). All fertilizers must be registered with the Department of Agriculture before distribution (6-412-3).

5. AGRICULTURE

All livestock dealers must be licensed by the Department, but the definition of livestock dealers would exclude the feedlot operator (6-761-2). The Department also licenses horse urine farms, which must be kept in a sanitary condition (6-902). No garbage, meaning putrescible animal wastes, may be fed to swine without first securing a permit from the Department (6-1671-2). All garbage must be treated by boiling for at least 30 minutes before it may be fed (6-1674). The Department is responsible for maintaining sanitary conditions in the dairies of the state (6-2701). Inspection of dairy barns to insure sanitary conditions is also a function of the Department (6-2742).

6. NUISANCE

Local health officials have the power to abate nuisance (9-610). Local and state health officials may also enforce a prohibition against the discharge of any polluted matter into a stream or pond (18-1212).

7. SOIL AND WATER CONSERVATION

Vermont has a Natural Resources Conservation Council of which the Commissioner of Agriculture is a member (10-703). Its powers are mostly advisory (10-704). Natural Resources Conservation Districts (NRCD's) have land use powers, but only after approval in a local referendum (10-724). Regulation must have as purpose the conservation of soil or soil resources.

8. LAND USE

Vermont is one of about ten states with an active substantive state land use planning program. All development, as defined by the statute, comes under the regulation of the Environmental Board and District Environmental Commissions (10-6001). Development is so defined as not to include construction for farming operations (10-6001). The regulatory scheme is to require all development to obtain state permits (10-6086). Proposed development on primary agricultural soils will normally be denied a permit unless the applicant can show that the development will not reduce the potential of the soil or that the lands cannot give a fair rate of return with agricultural use (10-6086). All cities and towns may also zone and plan in order to minimize pollution and avoid loss of agricultural lands (24-4302). The towns are specifically authorized to zone land for agricultural purposes in order to safeguard their continued agricultural uses (24-4407).

Vermont was authorized to administer the NPDES on March 11, 1974. The Environmental Conservation Agency is charged with the administration.

VIRGINIA

Key to Legal Citation
Va. Code §____
(§____)
(62.1-44.5)

1. WATER

The Water Control Board (WCB) is responsible for implementing the state's water pollution control program (62.1-44.5). The definition of sewage would exclude agricultural wastes; these would fall under the catch-all provision of "other wastes" (62.1-44.3). There are no promulgated regulations or statutes that are specifically applicable to feedlot operations. Under the program's limitation on industrial wastes there is a certification requirement for such facilities (62.1-44.16). The WCB requires that all feedlot operations receive a state No-Discharge Certificate which prohibits the deposition of waste into state waters. There are no recommended measures for meeting the no-discharge requirement, although the WCB will refer the farmer to the County Extension Agent or the Soil Conservation Service to obtain the necessary design drawings for meeting the no-discharge requirement. Virginia has some generally applicable laws relating to the pollution of the state's waters. All water is declared to be a natural resource of the state and the state may utilize whatever powers are necessary to protect it (62.1-11). It is a misdemeanor to throw garbage, refuse or other solid wastes into the waters of the state (62.1-194). It is unlawful to dump any noxious substance into the waters of the state (62.1-194.1). It is also unlawful to dispose of debris in any river, creek, stream or swamp (62.1-194.2). There is, in addition, a recently enacted Groundwater Act which seeks to prevent the pollution of the groundwater of the state (62.1-44.85). The WCB may declare a region to be an area of critical groundwater if it appears that the groundwater is polluted (62.1-44.95). Special regulations may then be enacted regarding use and pollution of the groundwater in the designated area (62.1-44.97).

ADDRESS: Water Control Board
2111 Hamilton Street
P. O. Box 11143
Richmond, Virginia 23230
804/786-1411

2. SOLID WASTE

The Department of Health (DOH), Bureau of Solid Waste and Vector Control is responsible for implementing the state's solid waste program (32-9.1). There are presently no solid waste regulations specifically dealing with confined animal feedlots. The regulations define solid waste to include agricultural wastes. There is a general prohibition against open dumping. The DOH does not apply the permit requirements for solid waste disposal sites to feedlots. There is also a State Commission on Solid Wastes, which is a study and advisory group (9-144). Each city and county must deal with the problem of solid waste, including agricultural waste disposal (32-9.1). Counties have certain solid waste disposal powers, including the ability to require dumping at county-owned landfills or dumps (15.1-282). Special sanitary districts are authorized for the tidal land areas to prevent their pollution (21-142). All industrial and other wastes must be disposed of in a manner that has been approved by the DOH (21-175). There are, in addition, sanitary districts for non-tidal waters with powers to prevent pollution (21-248, 249).

ADDRESS: Department of Health
Bureau of Solid Waste and Vector Control
Room 209
401-A Colley Avenue
Norfolk, Virginia 23507
804/627-4511

3. AIR

The Air Pollution Control Board (APCB) is responsible for implementing the state's air pollution control program (10-17.8). The APCB may create local air pollution control districts to implement and enforce the statutory and regulatory program (10-17.18). Although the statutory definition of air pollution does not specifically mention odor (10-17.10), there are regulations which prohibit the discharging of an odor which is objectionable to individuals of ordinary sensibility (Reg. 4.61). No measuring technique is mentioned; an odor panel survey is, however, one recommended method for determining whether the regulation has been violated. The APCB, in formulating relief from odor polluting facilities, must consider economic and technological feasibility (Reg. 4.62).

ADDRESS: Air Pollution Control Board
Room 1106
9th Street State Office Building
Richmond, Virginia 23219
804/786-2378

4. COMMERCIAL FEED AND FERTILIZER

The Department of Agriculture and Commerce (DAC) regulates the commercial feed industry (3.1-798). A farmer or feedlot operator who is feeding his own animals may do so without meeting the registration and other requirements of the DAC. If he is contracting with other individuals or firms to grow out their animals, the feed must be registered (3.1-808). The DAC recently adopted a regulation relating to the use of Dried Poultry Waste (DPW) but it has no regulations for any other kind of processed animal waste. All DPW must be thermally dried and may not contain more than 15% moisture, less than 15% crude protein, more than 18% crude fiber, more than 30% ash, nor more than 2% feathers. DPW must be free of pathogenic organisms and pesticides. It may be used up to 15 days prior to production. Labeling and instructions are required. The DAC also administers the commercial fertilizer law (3.1-75.1). All fertilizers must be registered, but unmanipulated animal manures are excluded from the definition of fertilizer (3.1-75.1). Unmanipulated manure is defined to be manure which has not been subjected to drying, grinding, shredding, mixing or other processing (3.1-76.1).

ADDRESS: Department of Agriculture and Commerce
Division of Product & Industry Regulation
P. O. Box 1163
Richmond, Virginia 23209

5. AGRICULTURE

The DAC also regulates the feeding of garbage to swine (3.1-758). There is a general prohibition against the feeding of garbage, although the Commissioner of Agriculture may exempt heat-treated garbage which he has determined to be non-putrescible (3.1-758). If he so finds, the garbage becomes commercial feed; if sold, it then must meet the regulation requirements of the commercial feed law. A person who feeds garbage to swine must be licensed by the Commissioner (3.1-760). There is, in addition, a Virginia Beef Cattle Commission with the responsibility of promoting the beef industry in Virginia (3.1-796.12). The State Board of Health has the authority to enact sanitary regulations for the dairy industry (3.1-425).

6. NUISANCE

Cities and counties have the primary responsibility for abating nuisance. Counties may regulate the keeping of animals and fowl within a certain distance of residences (15.1-517). Cities have general authority to compel the abatement or removal of any nuisance (15.1-867). All nuisance actions must be brought before a special grand jury before abatement is possible (48-1). Sanitary districts may also abate nuisance (21-18.4). A tenant farmer may not sell manure made on the farm unless the owner specifically allows such sale (55-215).

7. SOIL AND WATER CONSERVATION

There is a state Soil and Water Conservation Commission made up primarily of farmers (21-6). The duties of the State Commission are advisory and research oriented (21-10). The State Commission also implements the erosion and sediment control laws (21-89.1 et seq). Many agricultural activities are exempted from the regulatory authority of the Commission. The local Soil Conservation Districts may adopt and enforce land use regulations after local referenda (21-68). The regulations may require the carrying out of necessary engineering operations and other measures designed to conserve soil resources (21-79).

8. LAND USE

Both cities and counties have the general power to zone and plan for agricultural uses (15.1-486). The state is also involved in planning and zoning in areas of critical environmental concern (10-187); it creates minimum criteria for development in those areas (10-193). The state is also involved in wetlands protection; agricultural pursuits are specifically allowed in such areas (62.1-13.5). Land devoted to agricultural uses may be assessed at use value rather than fair market value (58-769.5). All counties, cities or towns which have adopted land use plans may also utilize a preferential assessment system (58-769.6). Upon a change in use, the landowner must pay a rollback tax equal to the difference between the taxes he paid and what he would have paid under market value assessment for the previous five-year period (58-769.10).

Virginia was authorized to administer the NPDES on March 31, 1975. The WCB is the administering agency.

WASHINGTON

Key to Legal Citation
Wash. Rev. Code §____
(§____)
(43.21A.060)

1. WATER

The water pollution program is operated through the Department of Ecology (DOE), Water Quality Management Section (43.21A.060). The DOE's purpose is to meet the expanding agricultural, economic and environmental needs of the state (43.21A.010). There is also an Ecological Commission consisting of state officials, including the director of the Department of Agriculture (43. 21A.170). It is unlawful for any person to discharge pollutants into any of the waters of the state or to allow any organic or inorganic matter that would cause or tend to cause pollution to drain into any waters (90.48.080). The statute does not designate components such as industrial wastes, sewage, etc. Plans and specifications for the construction of new sewerage systems or sewage disposal plants must be submitted to the DOE (90.48.110). Any person who conducts a commercial or industrial operation of any type that results in the disposal of solid or liquid waste material into the waters of the state must obtain a permit from the DOE or from a local governmental body if the authority has been delegated to it (90.48.160, 90.48.165).

The DOE submitted to the EPA a prototype NPDES permit for the smaller feedlot (i.e. 200 dairy cows, 300 beef cattle) which would have permitted these feedlots to reach the no-discharge requirement after December 1, 1979. The DOE proposed to place several conditions on the permit which would have required the permittee to dispose of sanitary wastes in accordance with local health authority rules. In addition, some acceptable process would ahve been required to insure against groundwater pollution. The EPA rejected the prototype because it would have allowed discharges beyond July 1, 1977, and recommended use of enforcement compliance schedule letters on an individual hardship basis after a finding of good faith in attempts to achieve the July 1, 1977 deadline.

The establishment or maintenance of any slaughter pens, stock feeding yards, or hogpens and the deposit or maintenance of any unclean or unwholesome substance sufficiently near the source of drinking water of a city or town so that it might cause pollution thereof are declared to be nuisances and may involve criminal sanctions (35.88.030, 35.88.040). Any person who deposits in any waters used for domestic drinking supply purposes anything that could pollute the water is guilty of a gross misdemeanor (79.54.010).

Any person who places within the watershed of a city any matter which could pollute the water supply is guilty of a misdemeanor, even though the source of pollution is in an adjacent state (70.54.030).

ADDRESS: Department of Ecology
Water Quality Management Section
Olympia, Washington 98504
206/753-2800

2. SOLID WASTE

The DOE, Solid Waste Management Division is the agency responsible for implementing the state's solid waste program (70.95.030). There is a solid waste advisory committee which must include at least one representative from the agricultural industry (70.95.040). The definition of solid wastes does not specifically mention agricultural wastes but is certainly broad enough to include them (70.95.030). The DOE sets minimum standards for waste disposal areas after review by the committee (70.95.070). Cities and counties must develop solid waste management plans that deal with all air, land and water pollution problems (70.95.090). Every solid waste disposal site must be licensed by the local health department (70.95.170). It is unlawful to dump or deposit solid waste without a permit, with an exception being made for dumping of solid waste resulting from one's own activities on land owned by him provided that a nuisance is not created (70.95.240). The thrust of the statute is directed toward the municiapl solid waste program.

ADDRESS: Department of Ecology
Solid Waste Management Division
Olympia, Washington 98504
206/753-2849

3. AIR

The DOE, Air Resource Division is responsible for implementing the state's air pollution control program (43.21A.060). Air pollution control authority may be delegated to local agencies consisting of one or more cities and/or counties (70.94.053). Air contaminant is specifically defined to include any odorous substance (70.94.030). The regulations call for registration of all cattle feedlots, but, by administrative policy, only the larger ones are required to seek permits. Under DOE regulations, every feedlot handling more than 1,000 animal units, and in some cases fewer, must register with DOE as an air contaminant source (WAC 18-04-040, WAC 18-04-100). Local agencies have the option of imposing higher standards but may not fall below the minimum set by the state. The regulations call merely for the feedlot operator to observe good housekeeping and management practices to control the emission of dust and/or odor (WAC 18-04-040).

ADDRESS: Department of Ecology
Air Resource Division
Olympia, Washington 98504
206/753-2800

4. COMMERCIAL FEED AND FERTILIZER

Feeds must be registered with the Department of Agriculture (15.53.9014). Experimental feeds, however, are exempted from the registration requirement (15.53.901). The Department has promulgated several regulations dealing with the sale or distribution of commercial feed. Processed animal waste products (PAWP) must be registered with the Department prior to distribution or sale. This would not apply to a feedlot processing its own wastes for use on its own animals. PAWP's include dried poultry waste (DPW), dried poultry litter (DPL), dried ruminant waste (DRW) and undried processed animal waste product. Quality standards for protein, fiber, ash, feathers, moisture and litter content are mandated for each type of PAWP. PAWP must be free of harmful pathogens and pesticide residues. Proper labelling as to contents must also be utilized. Commercial fertilizers are defined to include manipulated animal manures (15.54.272). All commercial fertilizers must be registered with the Department of Agriculture (15.54.320).

ADDRESS: Department of Agriculture
Feed and Fertilizer Branch
Olympia, Washington 90504
206/753-5063

5. AGRICULTURE

All garbage, before it may be fed to swine, must be heated to at least 212 degrees Fahrenheit for a minimum period of 30 minutes (16.36.103). No person may feed garbage to swine without first securing a license from the Department of Agriculture (16.36.105). Legal guidelines have been provided for the feeding of garbage to swine. The Department of Health inspects dairies for unsanitary conditions. The yards may not be filthy nor may there be deposits of manure which are allowed to decay or ferment. The barn must have floors suitable for drainage (15.32.060). No pigpen or manure accumulation is permitted within 100 feet of any milk room or within 50 feet of any place where milking is done (15.32.060). All dairy barns must be well ventilated and well lighted (15.36.155, 15.36.160). Milking stable floors must be constructed of impervious material unless the milk is to be pasteurized (15.36.165). Owners of commercial feedlots must obtain certified feedlot licenses from the Department of Agriculture (16.58.040). The purpose of the statute is to expedite the movement of cattle without losing the ownership identity of such cattle (16.58.010). Operators of public livestock markets must obtain licenses (16.65.030). The typical feedlot operation would not be classified as a market but would, instead, fall under the definition of a stockyard (16.65.010). The floors of all pens must be kept in good repair and must have adequate drainage (16.65.360). Adequate cleaning facilities must be maintained (16.65.360). Counties may order that any area within their boundaries be declared off limits to livestock running at large (16.24.010, 16.24.090). All operators of fur farms must register with the Department of Agriculture (16.72.050).

6. NUISANCE

Nuisance is broadly defined by statute (7.48.010). Several cases have found that an odor is sufficiently injurious to neighboring landowners to become an actionable nuisance. Public nuisance is defined to include the deposit of any offal or noisome substance in a place where it injures another, and the depositing of offal or other offensive matter in any watercourse (7.58.140). A nuisance may not become a legal use merely by lapse of time (7.47.190). Every person who maintains a nuisance is guilty of a misdemeanor (9.66.030). Every person who deposits unwholesome substances on land or water is guilty of a gross misdemeanor (9.66.050). First-class cities may provide for the abatement of nuisance (35.22.280). They may also regulate the pollution of streams running through their corporate limits or used for their domestic drinking supply (35.22.280). Second-class cities have similar powers (35.23.440). Third-class cities have more limited authority to abate nuisance (35.24.290).

7. SOIL CONSERVATION

There is a State Conservation Commission which must include at least one active farmer (89.08.030). It has mostly advisory powers. Local conservation districts do not possess land use powers (89.08.220).

8. LAND USE

Every county planning agency must prepare a comprehensive plan (36.70.320). A required element of this plan is the location and the specification of the extent of the use of the land for agriculture (36.70.330). Zoning maps must follow the adoption of the mandatory plan (36.70.720). There is no exemption for agricultural use (36.70.750). Cities also have the power to zone and plan with no exemption made for agricultural use (35.63.080). Development permits issued by a State Shorelines Hearing Board are required for development of a substantial nature within the area designated as shoreline (90.58.140). Washington does have a system of preferential tax assessment for agricultural and open-space land. Land so classified is valued at use value, not market value (84.34.065). Upon a change in use the total amount of tax due under fair market assessment is collected as well as a 20% penalty on that full tax (84.34.080).

Washington was authorized to administer the NPDES program on November 14, 1973. The DOE is the administering agency.

WEST VIRGINIA

Key to Legal Citation
W. Va. Code §____
(§____)
(20-5A-3)

1. WATER

The Department of Natural Resources (DNR), Division of Water Resources is the agency responsible for implementing the state's water pollution control program (20-5A-3). Sewage is defined to include all water-carried animal wastes (20-5A-2). All individuals who allow sewage to flow into the waters of the state or who construct disposal systems must obtain permits (20-5A-5). The regulations do not address themselves to feedlot problems specifically, feedlots being relatively rare in the state. There are, however, some general regulations which would be applicable. The discharge may not contain visible floating solids, have objectionable odors, have objectionable bacterial concentrations or have objectionable color (Reg. 3). The major emphasis of the regulations is the particular water quality criteria for the receiving waters. The rule-making authority is exercised by the State Water Resources Board (WRB), which does not include an agricultural member (20-5-3). There is, in addition, a Natural Streams Preservation Act which vests in the WRB the authority to issue permits for any activity that might affect the free-flowing nature of these designated streams (20-5B-5). A violation of the Natural Streams Act is deemed to be a nuisance which can be abated by the Board (20-5B-12). Any person who knowingly and wilfully releases any offensive or poisonous substance into waters of the state which are used for domestic purposes is guilty of a misdemeanor and may be fined between $25 and $200 (16-9-2). This section exempts those commercial or industrial wastes subject to the regulatory control of the DNR or the Air Pollution Control Commission (APCC) (16-9-2).

The Department of Health (DOH) is also involved in regulating water pollution through its permit-issuing authority for small and large sewage and excreta disposal systems (16-1-3). Design standards for larger operations are being developed. Feedlots are handled on a case-by-case basis, since there are few such facilities in the state. The regulations call for both construction and installation permits to be issued by the DOH (Reg. 4). In addition, there is an operational permit requirement (Reg. 4.2). The design standard regulations require individual application to the Division of Sanitary Engineering for all methods not described in the regulations (Reg. 1.7). This, in essence, requires all feedlot waste systems to seek approval by the Chief of the Division of Sanitary Engineering. The regulations and design requirements apply to milk plants or dairies, slaughterhouses, and stock or poultry farms.

ADDRESS: Department of Natural Resources
Water Resources Division
Charleston, West Virginia 25305
304/348-2107

Department of Health
Division of Sanitary Engineering
1800 Washington Street
Charleston, West Virginia 25305
304/348-2981

2. SOLID WASTE

The DOH, through its aforementioned permitting system for all sewage and excreta disposal systems, regulates the solid waste disposal problem of feedlots. The DOH has promulgated general solid waste regulations, but animal manure is specifically exempted from the application of the regulations because of DNR and APCC control.

ADDRESS: Department of Health
Division of Solid Waste
1800 Washington Street
Charleston, West Virginia 25305
304/348-2987

3. AIR

The Air Pollution Control Commission (APCC), which includes the Commissioner of Agriculture as an ex officio member, is the agency responsible for implementing the air pollution control program (16-20-4). The definition of air pollutants does not specifically include odors (16-20-2). The water pollution regulations do, however, include an odor limit, which is defined to be a threshold odor number of 8 at 40 degrees centigrade (Reg. 7.01). Permits are required for stationary sources of air pollution (16-20-11b). The powers of the APCC do not diminish the powers of local or state health officials to reduce or abate air pollution. APCC regulations require that reasonable precautions be utilized in minimizing the emission of fugitive particulate matter. The regulations also prohibit the emission of objectionable odor, which is to be defined by a representative of the APCC. The regulations recommend using the Barnabey-Cheney Scentometer or other recognized systems. An exception is made for the "normal and necessary" operations associated with the production of agricultural products or of livestock and poultry raised on the premises.

ADDRESS: Air Pollution Control Commission
1558 Washington Street, East
Charleston, West Virginia 25311
304/348-3286

4. COMMERCIAL FEED AND FERTILIZER

All commercial feeds must be registered with the Department of Agriculture (19-4-4) before they may be distributed (19-14-3). All fertilizers must also be registered (19-15-2). Unmanipulated animal manures are exempted from the definition of commercial fertilizer (19-15-1).

5. DEPARTMENT OF AGRICULTURE

The Department of Agriculture requires permits before garbage may be fed to swine (19-9A-2). Garbage includes putrescible animal wastes. All garbage, before it may be fed, must be thoroughly heated for at least 30 minutes at a temperature of 212 degrees Fahrenheit (19-9A-5). It is a misdemeanor to confine an animal in any place without a sufficient quantity of wholesome food and water or knowingly to feed a dairy cow a food that produces impure milk (61-8-19). The Department regulates the sanitary conditions of stables and other buildings where animals are confined (19-9-2). The Department also regulates the sanitary condition of dairies (19-11-3).

6. NUISANCE

All municipalities have the authority to prevent the depositing of offensive matter in public places, to prohibit the accumulation of garbage, to prevent injury to their residents from anything that is offensive or unwholesome and to regulate or prohibit the keeping of animals or fowls within the city limits (8-12-5). The State Board of Health has general authority, concurrent with local boards, to abate nuisance (16-2A-1, 16-1-3). It is unlawful to deposit any dead animal or part thereof, offal, or animal excrement in a body of water used for domestic purposes (16-9-2). It is unlawful to release offensive matters which are a threat to the public health on any land or water (16-9-3).

7. SOIL CONSERVATION

There is a State Soil Conservation Committee with overall advisory powers (19-21A-4). The committee is the 208 agency dealing with agricultural problems. Local districts may be created by petition of the residents (19-21A-5). The local districts may adopt land use regulations after local referenda authorize the exercise of those powers (19-21A-9).

8. LAND USE

All cities and counties may create planning commissions (8-24-1). Rural planning is specifically mentioned as a goal of the statute (8-24-1). A plan may include a land utilization sector including agricultural uses and may also deal with the conservation of soil and agricultural resources (8-24-17). Cities and counties also have the power to zone (8-24-39). There is no exemption for agricultural uses (8-24-40). West Virginia does not have a system of preferential tax assessment for agricultural land (11-3-1).

The West Virginia program has not been approved for the National Pollutant Discharge Elimination System.

WISCONSIN

Key to Legal Citation
Wis. Stat. Ann. §____(West)
(§____)
(144.025)

1. WATER

The water pollution control program is operated by the Department of Natural Resources (DNR), Bureau of Water Quality (144.025). The DNR has general rule-making authority as well (144.025). The statutes define sewage so as to exclude manure; animal wastes would fall under the definition of refuse or other wastes (144.01). There may be no dumping of garbage or other refuse in any area that is subject to inundation by periodic flooding if there is a threat that such refuse will be washed into any surface waters of the state (144.045). Wisconsin has a permit system that basically follows the EPA regulations (147.02). There is an exclusion from the permit requirement for disposal of solid wastes, including wet or semi-liquid wastes, at a site or operation licensed pursuant to DNR regulations addressing land disposal (Reg. NR 200.03). This exception is applicable only for licensed sanitary landfills, not for agricultural operations. The DNR has proposed a set of regulations covering feedlots which coincide with the federal regulations as to minimum sizes covered (NR 243.01 et seq). Wisconsin, however, has a unique system for adopting regulations that affect animal waste treatment. Before any state agency may propose a rule, it must be submitted to the State Senate and House Agricultural Committees, which must hold public hearings on the matter. The rule is then given effect only if it is approved by a joint resolution of each house of the legislature (13.565). At present the proposed regulations are in the House and Senate Committees and have been so since November 1976. The Wisconsin draft regulations also deal with the problem of aquatic animal production facilities, including hatcheries and fish farms which have a discharge on any 30 days or more per year and produce more than 20,000 pounds of aquatic animals per year. Additionally, no person may throw or deposit into the waters of the state any substance deleterious to game or fish life (29.29).

ADDDESS: Department of Natural Resources
Bureau of Water Quality
P. O. Box 450
Madison, Wisconsin 53701
608/266-3910

2. SOLID WASTE

The DNR, Solid Waste Management Section is responsible for implementing the state's solid waste management program (144.31). Solid waste is defined to include wastes from agricultural operations but not to include dissolved materials in wastewater effluents (144.30). By specific regulations the DNR has exempted the land application of manure from the permitting requirements that usually accompany a solid waste management system (Reg. NR 151.12). In addition, agricultural operations are excluded from the permit requirements that otherwise apply to the land disposal of liquid wastes (Reg. NR 214.02). The feedlot operator still must meet other minimum standards for land disposal operations, namely keeping the operation nuisance-free and not applying manure within 1,000 feet of a navigable lake or flowage, within 300 feet of a navigable river, within any area that may cause ground or surface water pollution, or within any wetland area (Reg. NR 151.12). Counties may also adopt and implement solid waste management plans and systems dealing with, among other problems, agricultural waste disposal [59.07(135)].

ADDRESS: Department of Natural Resources
Solid Waste Management Section
P. O. Box 450
Madison, Wisconsin 53701
608/266-7055

3. AIR

The DNR, Air Quality Control Section is responsible for implementing the state's air pollution control program. Air contaminants are specifically defined to include odorous substances (144.30). The regulations provide that no person shall cause or allow an emission that results in an objectionable odor unless preventive measures satisfactory to the DNR are taken to control such an emission (Reg. NR 154.18). An objectionable odor is determined by either of two methods. The first is merely an investigation with findings made as to intensity, frequency and duration of odor, as well as to the type of area involved. The second test requires that 60% of a random sample of persons exposed to the odor claim it to be objectionable (Reg. NR 154.18). Abatement techniques recommended include removal and disposal of the odorous substance, changes in methods of handling and storage so as to minimize odor problems, and the following of prescribed standards in the maintenance of the premises. The regulations prohibit the emission of fugitive dust so as to exceed an ambient air quality standard or to cause air pollution (Reg. NR 154-11). Reasonable precautions must be taken to limit such emission. The statute provides for counties to adopt and administer local air pollution control programs, including regulation of emissions within the corporate boundaries of the cities contained within the counties (144.41).

ADDRESS: Department of Natural Resources
Air Quality Control Section
Box 7921
Madison, Wisconsin 53707
608/266-1199

4. COMMERCIAL FEED AND FERTILIZER

All persons who distribute fertilizer in the state must obtain licenses from the Department of Agriculture [94.64(3)]. There is no registration requirement, but there are labeling requirements [94.64(2)]. Fertilizers are so defined as to exclude unmanipulated animal manures [94.64(1)]. Soil conditioners are defined to include any substance other than a fertilizer which is used for the improvement of the physical nature of the soil [94.64(1)]. Soil conditioners are exempt from the labeling and licensing requirements of the act, but any representations made for them are subject to regulation [94.64(6)]. All commercial feeds must also be registered with the Department [94.72(5)]. Commercial feed is defined to include all materials used for feeding except meat and other portions of animal carcasses in their raw or natural state without further processing except freezing or denaturing [94.72(1)]. All manufacturers or distributors of feed must obtain licenses [94.72(5)].

5. AGRICULTURE

It is unlawful for any individual to feed public or commercial garbage to swine. Public garbage is so defined as to exclude private household wastes not removed from the premises where produced (95.10). All poultry dealers must be registered with the county clerk (134.50). Similarly, livestock dealers must also be licensed, but the definition of a dealer would exclude the farmer who feeds livestock as part of his ongoing operation (95.70). Persons responsible for confining animals must maintain all animals in good health with adequate provision of food and drink (948.13). Minimum standards for sanitation for both indoor and outdoor enclosures must be maintained (984.14). The Department of Agriculture has the authority to inspect dairies and to require minimum sanitary standards (97.20).

6. NUISANCE

No person may erect a rendering plant within 1/8 mile of a dwelling, business or public highway. This does not affect preexisting rendering plants (95.72). No hog or pig farm may be operated in connection with a rendering plant (95.72). Every county and city with over 5,000 inhabitants may restrict public slaughterhouses as long as such restrictions are consistent with regulations of the Department of Agriculture (66.075). Any individual, county, city, village or town may bring an action to abate a public nuisance (823.01). Violations of city ordinances may rise to the level of a nuisance and may be enjoined (823.07). Nuisance is broadly defined to include any source of filth (146.14). Local board of health personnel have the authority to inspect premises upon which a nuisance is said to exist (146.14). The cost of abating a nuisance may be charged against the owner of the premises (146.14). Any city or village may restrict the location or expansion of any industry which carries on a nauseous, offensive or unwholesome business within the corporate limits or within four miles outside its boundaries (66.052).

7. SOIL AND WATER CONSERVATION

There is a statewide Board of Soil and Water Conservation Districts with overall advisory powers (92.04). Local districts may be created by county boards of supervisors (92.05). Local districts have land use planning and conservation powers (92.08). Land use regulations may be adopted by the districts if they are in accordance with the plans developed and if a majority of the electors favor their adoption (92.09). Counties and cities may contract to do soil conservation work on privately owned lands, providing the work does not exceed $1,000 per year (66.34).

8. LAND USE

Wisconsin has a very intensive land use control scheme for shorelands (144.26). All development of shorelands must be approved by the county which, in turn, must have adopted a set of regulations that meet the minimum standards set by the DNR (144.26). Towns are also given the authority to zone shorelands in conformity with DNR rules (59.971). Filling is limited and all uses must be consonant with the preservation of the shorelands environment (144.26). All uses that are approved must minimize the possibility of pollution (144.26). Shoreland is so defined as to exclude land that is adjacent to farm drainage ditches if such land is maintained in non-structural agricultural uses or is not adjacent to a natural navigable stream (144.26). Counties have the authority to zone and may do so within towns, although not within cities (59.97, 59.07). If a county has not enacted a zoning ordinance, a town may zone agricultural uses contained within its corporate limits (60. 74). Villages also have the power to zone and plan (61.35). Land contained within a village that has continuously been used for agricultural purposes for a period of 20 years may be detached from the village and annexed to an adjoining town or village (61.74). A similar right of detachment is available for farmlands that are located within cities (62.075). Cities also have the general power to zone and plan. The Wisconsin Constitution specifically authorizes a preferential tax assessment scheme for open space and agricultural land (Art VIII, §1). Agricultural lands are to be assessed at use, not fair market, value (70.32).

Wisconsin was authorized to administer the NPDES on February 4, 1974. The DNR is the administering agency.

WYOMING

Key to Legal Citation
Wyo. Stat. §____
(§____)
(35-502)

1. WATER

The Department of Environmental Quality (DEQ), Water Quality Division (WQD) is the agency responsible for implementing the state's water pollution control program (35-502.6). The WQD includes an adivsory board made up of five members, one of whom must represent agricultural interests (35-502.13). Waste from agricultural operations falls under the catchall definition of wastes (35-502.3). No person may discharge any wastes without a permit (35-502.18). Wyoming does no more than apply the US EPA NPDES requirements for confined animal feedlot operations.

ADDRESS:. Department of Environmental Quality
Water Quality Division
Hathaway Building
Cheyenne, Wyoming 82002
307/777-7781

2. SOLID WASTE

The DEQ, Land Quality Division (LQD) is responsible for implementing the state's solid waste management program (35-502.6). Solid waste is defined to include waste from agricultural operations (35-502.3). The DEQ is authorized to enact regulations dealing with solid waste disposal requirements (35-502.43). The DEQ rules deal primarily with the municipal solid waste problem, although there is no specific exemption for agricultural solid waste disposal. The regulations require minimum standards for landfill sites and operating procedures.

ADDRESS:. Department of Environmental Quality
Land Quality Division
Hathaway Building
Cheyenne, Wyoming 82002
307/777-7756

3. AIR

The DEQ, Air Quality Division (AQD), is the agency responsible for implementing the state's air pollution control program (35-502.5). There is, in addition, an advisory board to AQD made up of five members, one of whom must represent agricultural interests (35-502.13). Air contaminant and air pollutant are defined to include both dust and odors. The AQD has issued regulations that deal specifically with the odor problem (Air Reg. Sect. 16). Odor emissions are measures at the property line and may be no greater than seven dilutions of odor-free air as measured on a scentometer. Two measurements must be taken within one hour before a violation is found. Odor-producing materials must be so stored as to minimize odor emissions. Since this is an ambient air quality standard, all new or modified sources of odor must receive construction and operating permits issued by AQD. Reasonable precautions must be taken in order to avoid the emission of fugitive dust in such quantities that the particulate ambient air quality standard is violated.

ADDRESS: Department of Environmental Quality
Air Quality Division
State Office Building, West
Cheyenne, Wyoming 82002
307/777-7391

4. COMMERCIAL FEED AND FERTILIZER

The Department of Agriculture enforces both the commercial feed and fertilizer laws. The commercial feed law requires labeling of all feeds after registration with the department (11-221.5). The mixture with a feed of any substance that is injurious to the health of livestock or poultry is prohibited (11-221.8). Fertilizer, which is defined to include any substance containing one or more plant nutrients, must be registered as well (11-227. 15). A guaranteed analysis, which may be in fractional units, must be provided (11-227.14).

5. AGRICULTURE

The State Veterinarian has the authority to inspect dairy barns and premises and order them cleaned, disinfected and kept in a sanitary condition (11-305). The Department of Agriculture is also given the authority to inspect dairies (35-281). There is a State Livestock Board composed of seven stockmen, three of whom must be woolgrowers (11-261). The Board's basic powers include the development of rules and regulations dealing with inspection, testing or quarantining of all livestock (11-263). The primary goal is to prevent theft and disease (11-262). The Board also grants permits for the feeding of garbage to swine (11-524). Garbage must be boiled for at least 30 minutes prior to feeding (11-529).

6. NUISANCE

The State Board of Health is given primary responsibility for abating nuisance (35-5). It also has residual power to prevent water pollution (35-19). County and city boards of health also have authority to regulate and abate nuisance conditions (35-486). The State Board may promulgate sanitary control regulations covering certain fertilizer material and water used in irrigation (35-25). The placement of refuse matter or garbage in any natural waterway is declared to be a public nuisance (35-462). It is also a nuisance to place waste material on public or private property not under the control of the person doing the placing (35-466).

7. CONSERVATION DISTRICTS

The State Conservation Commission has largely advisory powers over both regional and local districts. Regional conservation districts may be created by popular vote (11-240). Local districts are empowered to utilize preventive and control measures to conserve the land and to develop plans for conservation (11-245). In addition, conservation ordinances affecting land use may be enacted after an affirmative vote in a popular referendum (11-246).

8. LAND USE

Wyoming has a State Land Use Study Commission with advisory planning powers; it has developed a report and is implementing a statewide land use program (9-160.46). Counties have the authority to zone and plan in their unincorporated areas (18-289.1). Agricultural uses may be governed by the zoning regulations (18-298.1). Cities, as well, have the power to zone and plan (15.1-83). Wyoming has a system of preferential tax assessment for agricultural land under which it is assessed at use value, not market value (39-82). There is no provision for a rollback tax upon a change in use. In addition, livestock in feedlots are exempt from the ad valorem personal property tax (39-221.1).

Wyoming was authorized to administer the NPDES on January 30, 1975. The DEQ is the administering agency.

SECTION 5

COMPARISONS OF LAWS AMONG THE STATES

The laws and regulations of the various states differ markedly. In a few states they are comprehensive and explicit; more generally, they are vague. Moreover, regulation of dairies and/or of large feedlots is often spelled out in detail while that of smaller installations may, in practice at least, be governed by nuisance suits. In some states the regions, counties, cities or other political subdivisions have authority to participate in regulation.

In consequence, a tabulation such as is presented here is at best an outsider's interpretation of the published statutes and regulations. It should not be interpreted as being an infallible guide to practice.

TABLE 1. COMPARISON OF STATE LAW ON SELECTED ASPECTS OF ANIMAL AGRICULTURE

	State Administers NPDES program	Permit required for beef cattle (number)	Runoff storage capacity required (feedlots)	Depth of water per land application specified	Total depth of water applied per year specified	Explicit feedlot odor regulations	Explicit feedlot dust regulations
Alabama	No			No	No	Yes	
Alaska	No	(1)		No	No		
Arizona	No	500 (2)		No	No	Yes	
Arkansas	No	(1)		No	No	No	No
California	Yes	(1)	10 yr-24 hr			No (state)	No (state)
Colorado	Yes	1000	25 yr-24 hr	No	No	Yes	Yes
Connecticut	Yes	(1)		No	No		No
Delaware	Yes	(1)		(3)		No	No
Florida	No	(4)		No	No	No	No
Georgia	Yes	(1)	10 yr storm	No	No	No	No
Hawaii	Yes	(5)		No	No	Yes	Yes
Idaho	No	(5)		No	No	Yes	Yes
Illinois	No	(6)	(7)	No	(8)	Yes	Yes
Indiana	Yes	300		No	No	Yes	Yes
Iowa	No	(9)	25 yr-24 hr	No	Yes	Yes	No
Kansas	Yes	300	10 yr-24 hr	No	Yes	No	Yes
Kentucky	No	(1)		No	No	Yes	Yes
Louisiana	No	(1)		No	No	Yes	Yes
Maine	No	(1)		Yes	Yes		
Maryland	Yes	(1)		No	No	No	No

TABLE 1 CONTINUED

	State administers NPDES program	Permit required for beef cattle (number)	Runoff storage capacity required (feedlots)	Depth of water per land application specified	Total depth of water applied per year specified	Explicit feedlot odor regulations	Explicit feedlot dust regulations
Massachusetts	No	(1)		No	No	Yes	Yes
Michigan	Yes	(1)		No	Yes	No	No
Minnesota	Yes	(1)		No	No	Yes	No
Mississippi	Yes			No	No	Yes	Yes
Missouri	Yes	(10)		No	No	Yes	Yes
Montana	Yes	(1)	10 yr-24 hr	No		Yes	No
Nebraska	Yes	(1)	10 yr-24 hr	No	Yes	Yes	Yes
Nevada	Yes	(1)		No	No	No	No
New Hampshire	No	(1)		Yes	No	No	No
New Jersey	No					No	No
New Mexico	No	(11)		No	No	No	No
New York	Yes	(1)				No	No
North Carolina	Yes	(1)				No	No
North Dakota	Yes	(11)	10 yr-24 hr	No	No	Yes	Yes
Ohio	Yes	(1)		(12)	(12)	Yes	Yes
Oklahoma	No	(13)	10 yr-24 hr	No	No	No	Yes
Oregon	Yes	(1)		(14)	(14)	No	Yes
Pennsylvania	No	(1)		No	No	No	Yes
Rhode Island	No	(1)		No	No	No	Yes
South Carolina	Yes	(1)		No	No	No	No

TABLE 1 CONTINUED

	State administers NPDES program	Permit required for beef cattle (number)	Runoff storage capacity required (feedlots)	Depth of water per land application specified	Total depth of water applied per year specified	Explicit feedlot odor regulations	Explicit feedlot dust regulations
South Dakota	No	(1)		No	No	Yes	No
Tennessee	No	(1)		No	No	No	Yes
Texas	No	(15)	(16)	No	No	Yes	Yes
Utah	No	(1)		No	No	No	No
Vermont	Yes	(1)		No	No	Yes	Yes
Virginia	Yes	(1)		No	No	Yes	
Washington	Yes	(1)		No	No	Yes	
West Virginia	No	(1)		No	No	No	Yes
Wisconsin	Yes	(5)		No	No	Yes	Yes
Wyoming	Yes	(5)		No	No	Yes	Yes

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(1) any with discharge to waters of the state.

(2) Arizona - 500 head for LSB license; NPDES regulation otherwise.

(3) does not exceed infiltration capacity of soil.

(4) > 500 lbs of BOD_5/day.

(5) NPDES guidelines.

(6) Any small facility must seek a permit if it is causing or threatening to cause a violation of the Illinois Environmental Protection Act or of the Pollution Control Board Regulations.

(7) holding pond capacities to store volumes equal to the area of the feedlot plus any other contributing area multiplied by 12 inches for runoff from earthen areas and 15 inches for runoff from concrete areas.

TABLE 1 CONTINUED

(8) not to exceed the agronomic nitrogen rate.

(9) four types of feedlots must seek operational permits from the DEQ.

(10) letter of approval is required by the CWC for all feedlots regardless of size.

(11) See state law for exemptions.

(12) recommends individual application and plans for each unit.

(13) All feedlots must obtain licenses from the State Board of Agriculture.

(14) guidelines will reflect amounts based upon soil and topographic studies.

(15) All feedlots regardless of size must obtain permits from the TWQB.

(16) total pond capacity should be 3/4 of the average monthly rainfall occurring during the rainy season.

SECTION 6

THE EFFECTS ON CURRENT PRACTICES AND THE ECONOMIC IMPACTS OF VARIOUS CODE PROVISIONS

Animal agriculture is extremely varied. Operations range in size from a few chickens to over a hundred thousand head of cattle. Climate (drought, snow cover, floods, etc.), relation of the stockman to the land (owner, lease-holder, tenant, etc.), financial fluidity, and other variables temper the effects of any regulation so markedly that few valid generalizations can be made.

Agricultural economists in the US Department of Agriculture and the nation's universities have made and published many detailed studies of economic impacts of various regulations, actual or proposed. A number of these are listed at the end of this section of the report. Many more are to be found in the lists of references in the papers cited and in the lists of publications of the USDA and the Agricultural Experiment Stations of the fifty states. The proceedings of the Annual Cornell Conference on Animal Waste Problems and many agricultural periodicals, also, contain papers on agricultural economics.

An excellent survey on a national scale appeared in the Staff Report to the National Commission on Water Quality (April, 1976). As indicated in Table 2 (which is extracted from Table III.D.4, p. III-65 of the Staff Report), the impact of P.L. 92-500 on prices for beef, pork, and dairy products was anticipated to be higher in all cases by less than one percent; the impact on profits was negative, ranging from 5 to 25 percent in the cases which were calculable.

These figures, having been derived on the basis of the impact of P.L. 92-500, would not be directly applicable to state pollution abatement regulations. When it is remembered, however, that state laws must be at least as strict as federal, it may reasonably be assumed that the total impact--federal plus state--would be understated by the figures cited.

In the preparation of this report many opportunities presented themselves for visits and correspondence with stockmen, poultrymen, officials of their trade associations, and personnel of the regulating agencies. Costs of compliance were of serious concern. They were relegated to second place, however, by many operators who spoke with pride of their non-polluting operations and with gratitude for the understanding and cooperation they had received from state agencies, the Soil Conservation Service, and the Agricultural Extension Service.

TABLE 2. INDUSTRIAL IMPACT - PRICES, PROFITS

Industry	Percentage Change In Prices		Percentage Change In Profits	
	BPT Only	BPT and BAT[a]	BPT Only	BPT and BAT[a]
	1977	1983	1977	1983
Beef Feedlots	.08	.1	-25.	-5.
Dairy Feedlots	.37	.43	N.A.	N.A.
Hog Feedlots	.6	.70	-20.	-20.

a. Percentage difference from baseline in 1983.

BPT: Best Practicable Control Technology currently available.

BAT: Best Available Demonstrated Control Technology.

Source: NCWQ. From Development Planning and Research Associates, Inc., "Economic Impacts of Water Pollution Control Act of 1972 on Selected Food Industries," Vols. III, IV, VI, VIII and IX. 1976.

The anticipated impacts in terms of plant closures (extracted from Table III.D.6, p. III-78 of the same source) are given in Table 3.

TABLE 3. DISTRIBUTION OF INDUSTRIAL IMPACTS - PLANT CLOSURES, SUBCATEGORIES AND PRODUCTS

Industry	Number of Plant Closures[1] BPT/1977	Percentage of Capacity BPT/1977	Number of Plant Closures BAT/1983 (Incremental)	Percentage of Capacity	Most Impacted Subcategory
Beef Feedlots	7,300-15,800	1 to 3%	800-1,200	< 1%	Less than 500 head
Dairy Feedlots	15,500-33,500	2 to 5%	690-1,000	< 1%	Less than 100 head
Hog Feedlots	13,700-27,400	2 to 5%	1,460-2,800	< 1%	Less than 1,000 head

1- Difference in number of plants projected with and without P.L. 92-500 in 1977.

Source: NCWQ. From Development Planning and Research Associates, Inc., "Economic Impacts of Water Pollution Control Act of 1972 on Selected Food Industries"; Vols. III, IV, VI, VIII and IX. 1976.

Letters from two cattlemen are quoted. They explain, as no financial balance sheet alone could, why there is still meat on the American table.

"It was our unfortunate experience to have built our feedlot almost on the banks of the Sun River. This was done before all these environmental problems were realized. We have built a lagoon between our feedlot and the river large enough to handle a 24 hr 25 year rain run-off.

I have no quarrel with the regulations or agencies of our state on these requirements. I really question whether it was necessary to make our lagoon as large as it is, however. I also question if there will be very much run-off go into the lagoon.

These agencies have been very cooperative in allowing time to get these projects completed.

As far as any hindrance of any kind in our feeding operation, they have not bothered us at all. Deadlines were set and when it became impossible to meet them more time was granted.

My feeling is that if we as business people cooperate with the regulatory people we can get along. It is the one that bows his neck and refuses to recognize a problem that finds himself in trouble."

"We had topographical problems with our feedlot which made work difficult. Having established the feedlot site in 1959, before EPA, we located in an area where drainage was excellent but storage capabilities were very limited. As a result, to get into compliance we have done a great deal of diking, damming, and water-line work, including installation of two pumping units and several thousand feet of 4" water line. We presently have a very satisfactory setup. Our water retention reservoirs probably would contain up to twice the run-off from the required capacity needed to contain a 10-year storm (2.2 inches in a 24 hour period.) Since we could actually be pumping during the course of a storm we feel that our system is more than adequate. Excess water is pumped from dam site to nearby fields for irrigation use.

Because of the fact that our lot capacity is not great, approximately 4,000 head, costs have been high on a per capita basis. Although it is impossible to tie down a cost figure, I am sure that we have invested a minimum of $10.00 per head in our runoff control system. Most of the dirtwork was done with our own equipment, but trenching was hired. Some work had to be redone because of trying to do too little in the first place.

I feel that the Staff of the Water Quality Control Board were very co-operative with us during some rather trying situations. They could have been much tougher than they were, but as long as we were acting in good faith, they went along with us. To a certain extent we were learning together how to handle a difficult problem. We made some false starts but eventually solved the problem.

I don't feel that the EPA regulations concerning runoff from feedlots are unreasonable. If we are going to protect the environment we have to do it at all levels of industry and society. There will always be some added cost in this effort, but now that we know the requirements are there, we can plan to solve them from the beginning, rather than having to revamp structures that were previously built. Site location will become more important in the future as an industry tries to select areas which most readily adapt to environmental requirements. Obviously, this could reduce desirability of locating feedlots in certain areas, and so have a limited economic impact on those areas."

Consideration and cooperation on the part of the regulating agencies has, fortunately, been almost universal. A few cases did, however, emerge where coercion replaced cooperation as the strategy chosen to implement the regulatory scheme.

In a state which has an excellent record of cooperation and accomplishments at the state level, the counties have concurrent jurisdiction with the state in the enforcement of air pollution control regulations. State law provides an exemption from the requirement of obtaining a permit for "any equipment used in agricultural operations in the growing of crops or the raising of fowl or animals." The local air pollution control officer has attempted for three years to first locate, and then require a permit for, several feedmill operations that are located in feedlots. In many cases the pollution created by these feedmills is so minimal that they cannot be located. Nonetheless, the local officer, supported by an advisory opinion of his local legal staff is proceeding unyieldingly. Given the choice between narrowly or broadly interpreting the statutory exemption, the local official has chosen to require permits even though the feedmills are very minor sources of air pollution. In so doing he has lost the respect of the local stockmen who no longer possess the spirit of cooperation and compliance that had been present earlier.

The dairy industry is the segment of animal agriculture which has been most seriously buffetted by the spate of environmental regulations of the past decade. This is, of course, a consequence of the necessity of preserving a sanitary milk supply. A beefsteak or a pork chop still on the hoof may wallow in manure with impunity; milk must not be contaminated. In many states some agency is charged with enforcing a regulation forbidding the storage of manure near a dairy barn; another has a regulation forbidding spreading of manure on snow or frozen ground.

Dairy farms tend, in general, to be closer to towns. Thus, their neighbors are more fastidious. Washwater adds to the volume of effluent -- and thus to the volume of the holding ponds and the acreage of the spreading land required. Access to streams is frequently a problem in the lust bottom land meadows which are otherwise so desirable for grazing. Many small dairies were, in fact, encouraged to locate on streams a quarter century ago. They now find themselves unable to acquire the land necessary for waste disposal -- and would be unable to afford it if it were available.

And, finally, there is the array of non-dairy substitutes for everything the dairyman produces except, perhaps, his fees and taxes.

The National Milk Producers Federation observed in a release of 9 October 1973[1] that

> . . . 10 percent of the dairy farmers in Connecticut went out of business in the last year. Similar patterns have been experienced throughout the United States. In Pennsylvania, approximately 2,000 dairymen have left the business of producing milk in 1973 and another 1,500 dairy farmers have quit the business in Wisconsin since January 1, 1973. We estimate that nationally, approximately 10,000 dairymen may have left the business of producing milk in 1973. *The imposition of the proposed effluent guideline limitation standards, unless changed or greatly modified, will result in many more dairymen opting to leave the milk production business because of other available alternatives which are more economically attractive* . . .
>
> *Furthermore, milk production cannot be turned on and off.* Milk production is a business that requires a high investment per unit of production. It requires specialized equipment and a high level of management. It takes a long time to bring milk production down during periods of over-production. In the same manner, once milk production begins to fall, it is difficult to turn around. Recent dramatic milk production declines can be attributed to a lack of adequate economic incentive to keep milk producers in business or attract new operators . . .

In summary, the economic impacts of state environmental regulations are difficult to quantify on a rational basis. Nonetheless, the impact on the small or marginal producer is severe. In addition, administrative personnel in state environmental agencies are often not familiar with the very intricate and delicate structure of American animal agriculture. This, in turn, results in occasional overzealous implementation and enforcement where cooperation could have resulted in compliance without serious displacement of confined animal feeding operations. The result in these cases is one of unnecessary damage to animal agriculture.

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SECTION 7

THE INFLUENCE OF STATE LAWS AND REGULATIONS ON 208 PLANNING

> "Sec. 208. (a) For the purpose of encouraging and facilitating the development and implementation of areawide waste treatment management plans [organizations shall be designated to prepare plans which will include] (b)(2)(F) a process to (i) identify, if appropriate, agriculturally...related nonpoint sources of pollution, including runoff from manure disposal areas, and from land used for livestock and crop production, and (ii) set forth procedures and methods (including land use requirements) to control to the extent feasible such sources...[and] (K) a process to control the disposal of pollutants on land or in subsurface excavations within such area to protect ground and surface water quality..."
>
> -- P.L. 92-500

None of the state and few of the "areawide" 208 agencies designated to study nonpoint sources of pollution had completed their tasks by mid-1977. Many had, however, drafted plans for their studies and assessed the problems most critical in their jurisdictions. The lists of problems compiled by these agencies varied widely with population intensities, climate, and land structure. Municipal storm drainage flows, septic tank seepage, acid mine drainage, or irrigation return flows tended to head various lists when drawn up in order of urgency. In fact, a good case could probably be made for the assertion that the most critical threat which remains of pollution from animal wastes is that from the first flush of a city storm sewer carrying the droppings of pigeons, other birds, dogs, cats, mice, rats, and other city-dwelling animals.

The problems involving animal waste disposal which have been stated to be of concern to various 208 agencies include the following:

1) the possibility of excessive nitrates and/or salts leaching to groundwater from manure storage areas or from manure spread on agricultural land beyond the capacity of the vegetation to utilize the offending components;
2) the possible contribution of phosphorus to lakes or ponds from manure on pastures or crop land;
3) the spreading of manure on snow-covered slopes;
4) the wintering of livestock in mountain valleys;
5) the maintenance of access, by livestock, to surface water; and
6) fecal contamination of agricultural drainage ditches.

Remedies for these problems would usually be costly to the livestock owner, yet the financial return to him from their correction would often be negligible.

If a zero-discharge policy were to be adopted the effect on groundwater could well be worsened since time available for infiltration would be increased.

Where precipitation exceeds the sum of evaporation plus seepage the difference must inevitably be discharged. Many state codes cover this case by requiring that all discharges meet the standards established for municipal sewage. Such requirements, if strictly enforced, would place an intolerable financial burden on pasture operations and on land spreading of manure. Spreading with prompt injection, if performed during the dry season, might still be feasible. Thermochemical processing or other utilization of the manure might, in some cases, allow some segments of the livestock industry to survive. This alternative will be explored at greater length in Section 9.

Where precipitation is less than the sum of potential evaporation plus seepage, discharge can, at least theoretically, be prevented by providing appropriately located storage ponds of adequate size. Costs would include those of construction and maintenance plus those of the opportunity foregone in dedicating land to use for evaporation ponds.

In arid and semi-arid areas, where the excess evaporation potential is large, a policy of zero-discharge might appear to be physically and economically feasible. In such settings, however, even polluted water has value. If the "pollutants" are crop nutrients, as would be the case with runoff from pastures or manure-spread fields, the "polluted" water would often be of more value to a downstream irrigator than would "unpolluted" water.

The legal obstacles to the application of a zero-discharge requirement to pasture land or to land on which manure had been spread would be quite substantial. If storage of large quantities of water be involved, dams and reservoirs as well as diked areas would be necessary. The former would require permits which, in turn, would require environmental impact assessments. The water withheld, even if not subject to appropriation, may well be contributory to a navigable waterway. In this case, precedents exist for denying the withholding of the water. The City of Chicago has spent years in the federal courts in litigation over the diversion of water from Lake Michigan via the Chicago Sanitary Canal to a tributary of the Mississippi River. Despite the fact that the purposes of this diversion included the protection of the municipal water supply, provision of a navigable waterway linking the Great Lakes and the Mississippi, and the generation of hydroelectric power the courts have held that the small fraction of a meter of additional depth in the Great Lakes forfeited by this diversion was an inviolable consideration. Supreme Court decisions in interstate disputes between Colorado and Kansas over waters of the Arkansas, Colorado and Wyoming over waters of the North Platte, Massachusetts and Connecticut over waters of the Connecticut, etc. have established legal precedents which would certainly be involved if some agency were to require that normal runoff from pastures and spreading areas be diverted or withheld.

Concern is, in fact, being expressed over such a contingency in Wyoming at present. As explained by the Hon. Dean T. Prosser, Jr., member of the Wyoming Legislature, a court has ruled "in regard to an EPA requirement upon the Husky Oil Company saying that they would either have to clean up the discharge material to meet federal standards of remove the effluent away from the drainage basin. The point of law that was of concern at the trial was whether Husky Oil had the privilege of choosing between the two alternatives or whether they had to clean up the effluent to meet EPA standards. The decision of the court ruling was that Husky Oil had the choice of the two alternatives and as a result of that ruling, Husky Oil has decided to remove the sewage effluent some seven miles out of the drainage basin and evaporate in evaporation ponds. This decision is of course most important, because the return water is lost to down stream irrigators. Although the amount of water lost in regard to the Husky decision is not of great importance, the real concern now is if the same decision were to be made by the City of Cheyenne some time in the future, then the loss to downstream irrigators would be disastrous."[1]

Litigation could also be confidently anticipated if regulations were to be promulgated which required the fencing off of all draws, brooks, or other minor tributaries flowing through pastures. Such a requirement could easily be interpreted as constituting expropriation of agricultural land.

Fortunately, at present nearly all the nonpoint animal waste problems are being handled quietly and effectively through educational activities and through reasonable interpretations and requirements administered by competent individuals in the enforcement agencies. Dogmatic insistance on unrealistic goals by overzealous enforcers of present law could be catastrophic to agriculture -- and thus to all who eat.

---

[1] Personal communication. April 15, 1977.

SECTION 8

THE REFEEDING OF MANURE

Manure has nutritive values which can be realized by direct refeeding with a minimum of processing. Chickens and many animals thrive on the reingestion of their own feces, sometimes after a period in which bacterial alteration can increase the vitamin content markedly (1). Rats are reported (2) to have "a voracious appetite for feces. Even though a diet complete in all known required nutrients is fed, the rat will recycle approximately 35-50 percent of his feces." When deprived of access to them for a period of several weeks growth ceases, weight losses occur, and death follows (3).

Many interesting studies have been carried out on the refeeding of dried poultry wastes (DPW) as a portion of the ration of laying hens. While the literature contains many conflicting reports and opinions on the value of DPW as a feed component, it would appear that it is a low-energy product which is, however, a good source of phosphorus and amino acids. In tests at Michigan State University the material has been used through 35 cycles as 12.5 percent and as 25 percent of hens' rations without detrimental effects. Performance and efficiency of egg production (in number of eggs per pound of feed) appear to be better when DPW is 10-20 percent of the ration than when it is omitted or when it exceeds 25 percent. As a means of manure disposal, refeeding is not too effective as the hens tend to eat more total feed to compensate for the low energy and then produce more manure.

The feeding of poultry litter (which consists of poultry manure added to wood shavings, sawdust, straw, bagasse, or other organic waste) to ruminants has often been successful.

"Organic waste from ruminants," Brady Anthony, the outstanding success among refeeders, has stated, "has a chemical constitution similar to the feed ingested and, in addition, is enriched by the presence of an abundance of rumen microbial matter. Organic waste as it is voided by ruminants is a fermentation product biologically safe for animals and it has none of the characteristics of organic waste products generally classified under the heading 'filth'" (4). In a number of papers over the years Anthony has described his program as it has evolved. Briefly, it consists of collecting fresh steer manure from a concrete slab, mixing it with coastal burmudagrass and ensiling the mixture. The ensilage is blended with corn and supplements for refeeding. Complete disposal may be attained by feeding the excess to sheep or brood cattle on pasture where sufficient area is available for natural disposal.

Frank Senior, consulting engineer for Feed Recycle, Inc., has successfully (12,13) produced a component of cattle feed from feedlot manure by first separating the manure, by means of a centrifuge, into a fibrous material and a liquid which contains protein in concentrations as high as four percent (14). Further concentration produces a cake which, on drying, yields a feed supplement that looks much like quick-freeze coffee. Some 240 lb of protein can be salvaged from each ton of dry manure in this manner. The fibers also have value for refeeding or as fuel. Results of toxicological tests conducted in July 1973 on steers whose ration had included about eight percent of Feed Recycle protein pellets were highly encouraging.

Refeeding is a subject beset with problems -- a few legitimate, many hysterical. It is banned by edict of the Food and Drug Administration in interstate commerce. Certain precautions are obviously advisable to prevent the spreading of animal diseases and the accumulation of drugs, antibiotics, and perhaps other detrimental materials. It is difficult, however, to reconcile the facts that many, if not most, animals are naturally coprophagous, and that the drugs so feared were legally fed to the animal which produced the manure, with an inflexible prohibition of refeeding rather than a reliance on meat inspection which is, in any event, already required. That many of the states share this philosophy is evident from the fact that, beginning with California in 1974, a number of them have adopted provisions legalizing the feeding of processed manure to livestock. California's experience with refeeding has been highly satisfactory.

James W. Helmer, Program Supervisor, Agricultural Chemicals and Feed, Department of Food and Agriculture, stated:

> "California has had regulations covering the recycling of animal waste for about three years, and to date has found them to be effective in producing a safe and useful feed ingredient.
>
> We require monitoring and analyses on a tonnage production basis. The processor is required to keep a record of these assay reports which include checks for pathogens, heavy metals, pesticides, and drug residue as well as mycotoxins. The products are also randomly sampled and checked by the Department of Food and Agriculture.
>
> To date we have not found any pathogen contamination or dangerous or illegal levels of pesticides or drugs.
>
> The biggest problem some processors have is product variability. Uniformity of animal waste depends greatly on time and method of collection and type of pasteurization process. Excessive nitrogen may be lost by composting if this is not done properly. However, processors are continually upgrading their processing procedures and we feel this will result in greater product uniformity" (15).

Dr. Leland M. Larsen, of Nutri-Systems, wrote:

> "I work as a nutrition consultant to several layer operations within the State of California. Three of these operations are currently selling processed poultry waste for use as a livestock feed. In one case the producer is also utilizing his own product for recycling back to his own laying hens. In the case of all three producers of DPW I feel that state regulatory officials have been very much involved in checking out their process to make sure that it is meeting the state requirements. In a couple of instances high levels of copper found in the processed DPW caused us to go back to reduce added copper levels in the lay feed in order to control copper levels in the finished DPW product. Though I do not peruse a large number of laboratory assays, it would appear as though the three producers that I work with are producing a product that is within the requirements of the California state regulations. I, of course, cannot speak for other producers with whom I do not work. The two producers that have been selling DPW for the longest period of time have a reputation among users for producing a product that is high in quality and seems to meet their needs very well" (16).

E. H. Whitcomb, Nutritionist, H & N, Inc., wrote:

> "The Feed Quality Control Committee of the P.E.P.A. [Pacific Egg & Poultry Association] has been interested in the recycling of animal waste into animal feed for a long time. In fact, it has been an item of discussion at nearly every committee meeting I have attended. I agree with what appears to be the opinion of most of the committee members concerning recycling or refeeding animal wastes and that is that some regulation is essential. Properly dried and carefully handled animal wastes are of considerable value to ruminant feeders and provide an excellent way of salvaging nutrients in poultry manure that would otherwise be wastes. On the other hand, careless or irresponsible handling would create problems that would more than cancel any economic benefits. We are concerned with rapid multiplication of micro-organisms such as Salmonella and with accumulations of toxic drugs or heavy metals. I believe regulations should be designed and enforced to ensure that this feed ingredient starts out and stays wholesome and nutritious.
>
> The problem with most codes or regulations when they are first written is that they are ultra conservative, almost to the point of being impractical. Once written, it is usually a real hassle to get them amended as though it is a terrible risk to remove or reduce a restriction. Writers of regulations always assume if something can go wrong, it will go wrong.

> I believe that the problem has been well handled in California without a great deal of difficulty. The use of recycled waste started slowly and cautiously but expanded under careful supervision and cooperation between the producers, the feeders and the state officials" (17).

In many of the Southeastern states it has long been the practice for producers with cow-calf operations to include broiler litter in the feed ration.

It is probable that more states will adopt regulations governing the refeeding of manure, and that the many states which now have such regulations will be modifying them as further experience and research establish the safety of practices not now permitted.

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SECTION 9

POTENTIAL LEGISLATIVE NEEDS AND ANIMAL RESIDUE CONVERSION PROCESSES

by

W. J. Huffman*

Introduction

A very thorough discussion of conversion processes for animal "wastes" was published by G. A. Whetstone, et.al. (1) in 1974. This state-of-the-art compilation was concerned with the processing methods for animal waste management and included the status of land spreading, bio-and thermoconversion processing for oil, gas, and/or char, and bioconversion for ultimate refeeding and soil conditioning. The purpose of this review is to assess the potential institutional practices regarding the use of these processes and to update the status of bioconversion and thermoconversion technology for oil and gas production. Particular attention is given to the production of oil and gas because of the energy deficiency that faces the United States and the potential that such processes may provide in supplementing energy demands.

This review will discuss technology in terms of the Fuel From Biomass Program that exists within the Energy Research and Development Administration (ERDA) and is currently under the direction of R. F. Ward (2). It is clearly recognized that related research is being conducted by other state or federal agencies, but a review of this major program is thought to provide a sufficient assessment of the technology status. This review does not discuss all projects within the biomass program but instead attempts to provide an update on those projects which are approaching commercialization and thus to provide a glimpse of new developments in biomass utilization. A thorough review may be obtained from the proceedings of the "Fuels From Biomass Symposium," held at the University of Illinois in April, 1976, which is to be published under sponsorship of the aforementioned ERDA program.

Finally, before proceeding with this review, it is important to note that the Fuels From Biomass Program does not classify animal by-products (manure) as "waste". Instead, these by-products are classified as "residues". The latter classification is employed because these agricultural by-products do have some existing uses (e.g., land spreading for fertilizer). The uses may be quite small in some instances, but, in any case, this classification recognizes that a developing technology must ultimately compete with the existing markets to obtain its feedstock. Residues can be secured as a feedstock only by actually paying the owner of said residue. A material is classified as "waste" when the material has no existing use or when the existing owner would be willing to pay to have someone take the material from his site. Municipal solid waste is an example of such a material. In general, animal by-products do have current market potential or real value to the owner and theyare, therefore, classified as a residue.

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Institutional Factors

Regardless of the end-use, there are several potential institutional factors which could affect an extensive use of agricultural residues. These include existing laws, regulations, and/or the interpretations thereof. Most of these factors would be centered around transportation of said residues. On the whole, this section only identifies possibilities; laws and regulations are outside the author's professional experience.

Transportation Factors

First of all, residues would probably have to be classified for rail transport if extensive utilization were to be practiced. The materials would have to be designated as a finished product, intermediate, or raw material. The latter is desirable for low rates. But, current rulings dictate that scrap metal be transported at high rates comparable to finished products; this works to the detriment of scrap metal utilization. Whether or not the same would be true for residues remains to be established.

Inter- and intrastate transportation restrictions, if any, must then be defined for these residues. The main consideration in this case is the possible transfer of disease (human and animal) and undesired or noxious plants from one sector to another. Sterilization practices might be specified and these could, in turn, affect the transportation rate structures noted above. Furthermore, these aspects might then require that the chemical and biological content of the residues be determined and specified. Existing regulations of both state and federal departments of agriculture would have to be carefully assessed before these aspects could be defined. A review of individual state regulations suggests that interstate transport has not been considered. Restrictions on intrastate transport are not specified either.

Processing Factors

It is probable that residue processing plants would have to meet any and all restrictions on industrial ventures. However, there are some aspects which remain to be defined.

One of these is that some states exempt agricultural "wastes" from solid waste disposal acts. The collection and storage of huge amounts of agricultural residues for efficient, economical plants (450-1800 metric tons per day; 500-2000 tons per day) would probably require a change in such laws. That is, storage of said feedstocks implies significant point sources of pollution.

Furthermore, some regulations on "solid waste" require that no material be held in place more than 24 hours prior to processing. These types of regulations are being changed as more and more resource recovery is practiced, but the fact that such regulations do exist must be recognized.

Perhaps, despite ERDA's definition, the most important factor is whether or not state and federal regulatory agencies would classify agricultural by-products as "residue" or as "waste". This definition could affect the interpretation of existing laws and regulations. It is also probable that odor control, not just from manure, would have to be assessed in detail because anaerobic digestion of a stockpiled feedstock could be a tremendous source of odor and must be subject to control.

It is hoped that this qualitative assessment will provide some insight into the pitfalls and needs of resource recovery in general and, specifically, utilization of agricultural residues.

Technology Update - Microbiological and Thermochemical Processes

As noted and emphasized in the reference compilation of 1974 (1), the utilization of cattle manure to produce oil and gas products is projected to, and probably will, require large concentrations of cattle to supply large plants (450-1800 metric tons per day; 500-2000 tons per day). These plants are capital-intensive. It is significant to note that no large-scale venture of this type has been undertaken for the production of some form of energy, except in the area of municipal solid waste where the disposal of the waste is of primary concern. The need for significant large-scale development, capital investment, and the uncertainty about federal government pricing policies has probably contributed to the overall lack or utilization. Nevertheless, it is important to note that one Request-for-Proposal (RFP) through the aforementioned Fuels From Biomass Program has been announced for a microbiological process using cattle feedlot manure and one is expected on a thermochemical gasification process within the next few months. Another has just been released for combustion. Each of these plants will have a production capacity exceeding 9 metric tons per day (900 metric tons per day for combustion) and should provide a much needed data base for economic assessments.

It is further noted that an oil-from-municipal-solid-waste demonstration plant (San Diego, Calif.; > 90 metric tons per day; 100 tons per day) and an oil-from-wood-chips plant (Albany, Oregon; > 2.7 metric tons per day; 3 tons per day) are scheduled for start-up in 1977. These are sponsored by the Environmental Protection Agency in concert with Occidental Chemical and the City of San Diego and the Energy Research and Development Administration, respectively. These two installations employ two different thermochemical technologies. The results should provide a significant data base regarding scale-up of process technology as well as data for economic analysis. The results will be of major interest to those involved with agricultural by-product utilization because, except for feed preparation, the installations involve general thermochemical processing technology of cellulosic solids.

With these two non-manure processes due on-stream in 1977 and the three RFP's developed by ERDA, it is clear that the utilization of biomass (residue and waste) will have undergone a significant step and critical review within the next five years. Successful demonstrations of these plants should lead to a serious consideration of the utilization of manure and other agricultural (and most probably silvicultural) residues. Thus, the need to establish regulations and laws, as noted above, becomes an item of critical importance.

Microbiological Processes

The two major areas of research and development within microbiological processing in the ERDA program are fermentation and anaerobic digestion. The former is directed mainly at the production of organic chemicals (e.g., ethyl alcohol) while the latter is concerned with the production of a substitute for natural gas. The ERDA RFP on a microbiological process employs the digestion technology for the production of a medium-energy gas (CH_4 plus CO_2). A good summary of the technology to be used in developing the proposed RFP demonstration plant is the recent work by Dynatech R/D Co. (3). This summary is not the basis for the RFP, but is cited therein along with a few other references; these references include the work of Pfeffer and his colleagues over the past few years (e.g., 4).

In general, the Dynatech analysis showed that a medium-energy gas (5340 cal/liter on a dry basis; 600 BTU/SCF) could be produced from an environmental cattle feedlot (one in which the cattle are held in an enclosed space with collection via droppings through slats) for an investment of approximately \$3630 per daily metric ton from a 10,000-head lot. Gas cost was \$0.18 per cu.m. (\$5.17 per MCF) for this small production or demonstration unit (320 metric tons per day; 13% solids). The economy of scale that is necessary for competitive marketing or utilization is illustrated by the fact that gas cost decreased to \$0.08 per cu.m. (\$2.25 per MCF) when feedlot size increased to 100,000 or more cattle. If the effluent sludge were to be sold as a feed material, gas cost would drop to approximately \$0.02 per cu.m. (\$0.50 per MCF) for $\geq$ 100,000 head when no additional treatment or transportation of the sludge is required. Fertilizer credit for the effluent sludge did not reduce the gas cost below the federally regulated price of gas (approximately \$0.05 per cu.m. or \$1.50 per MCF; 1977) even when cattle feedlots in excess of 100,000 head were considered, using standard (stirred tank) technology. The use of the more common dirt and concrete pad feedlots was almost totally noncompetitive at the 10,000-head size with gas costs of approximately \$0.78 and \$0.46 per cu.m. (\$22 and \$13 per MCF), respectively. This difference in costs is due largely to feed preparation and the decrease in degradable solids from dirt and concrete lots.

The digester for the environmental feedlot plant contributed 13% of the gas cost, labor 37%, manure 11%, and gas compression 10%. Hold-up or residence time of the digester was optimized at 8 days with an operating temperature of 60° C.

The Dynatech analysis also includes a thorough review of available technology with 209 references. Perhaps the most important technical aspect of the reviewed data is that a consistent Arrhenius type of reaction kinetics correlation could be developed for the digestion from nine different data sets over a temperature range of 15°C - 60°C using six different feedstocks. The nine data sets were generated between 1962 to 1975; this is considered to be an excellent statement of the maturity of this technology. For first-order, digestion kinetics based upon volatile solids content, the energy of activation was 15,175 cal/mole with a pre-exponential factor of 5.92×10^9 days $^{-1}$. These kinetic data were incorporated into a computer model and employed to develop the design and economics of the digester discussed above.

Jewell (5) has developed new technology for digestion using an immobilized medium. When the immobilized bacteria are operated in the mode of a fluidized bed, which is used in some thermochemical conversion schemes, Jewell reports that only a 6-12 hr. retention or digestion time is required, compared to the 8-day (possibly as low as 3-day) digestion using the standard technology presented above. This is a new concept for microbiological processing with a relatively high degree of technology which borders on that of thermochemical processing used in the petrochemical industry and in biomass conversion. However, in our opinion, this is an exciting development for bioconversion and is a potentially very promising reaction concept. It is hoped that other researchers will also investigate the work that Jewell and his colleagues have initiated. This is the type of innovative research that must be carried out in universities to solidify the promise of fuels from biomass that many others promote using standard technology.

Most fermentation technology is currently being directed toward the production of liquid organic chemicals which could be used as intermediates in the synthetic organic industry. However, most of this work is rooted in standard biological chemistry and, as one researcher suggests, there is a real need for innovative biochemistry (6).

Wilke (7) has introduced some different processing options in fermentation processes which do impact on the biochemistry. One of the more attractive is the use of a vacuum for the removal of methanol. The removal of this end-product apparently minimizes a product inhibition or thermodynamic equilibrium restriction since, by immediately removing the product, methanol production increased from 7 to 20 g/liter/hr. Wilke has also noted that removing lignin from the feed improves the yield of methanol.

The refeed process developed by Hamilton-Standard (8,9) is also being carried out within the ERDA program. This process is currently being scaled-up (size uncertain) at the Monfort feedlot in Colorado.

The above represents a summary review of recent developments in microbiological processing of biomass for fuels. The work of Jewell and Wilke suggests that some new horizons may be forthcoming. This is most encouraging. However, one must also recognize that current projected (not actual) costs are high: ≥ \$0.09 for a cu.m. of gas; ≥ \$0.40 per liter of methanol (\$2.50 per cu ft.; \$0.80 per gal). Competitive pricing (to natural gas and oil) appears to require the sale of both the "glamor" product (gas; organic) as well as the oft-ignored sludge. Finally, one must always be aware of the microbiological refeed processing experience that General Electric encountered between 1971-1973 (10): the plant was shut down because the bacterial population could not be maintained on the long-term basis that is needed for an economical operation. Similar experiences are not unusual in sewage sludge plants but the economics are not as crucial in this case, i.e., the waste must be disposed of regardless of the cost. Finally, it is noted that all the processes will be large scale (several hundred tons per day) if they are to be competitive. This requires large concentrations of cattle (≥ 100,000 head capacities) within 40-80 km (25-50 miles) of the central plant.

Thermochemical Processes

Thermochemical conversion involves a broad range of process schemes and chemistry and the options currently exceed those available to microbiological systems. However, the options can be classified into a manageable group consisting of: combustion, pyrolysis, partial oxidation, and solution phase hydrogenation.

Combustion of biomass solids is generally recognized as an actual, commercial technology which does not require any significant development. This is true, but one must recognize some of the pitfalls that may be encountered: corrosion from chlorides, high concentrations of nitrogen oxides, and excessive particulates. These aspects were discussed in the reference review (1) and need not be dwelt upon further. In general, combustion experience in the U.S. with municipal solid waste has been largely positive (11) and the same may be expected for biomass. The level of confidence is aptly illustrated by noting that the ERDA RFP on combustion of biomass is for 1000 tons per day which is, essentially, a commercial venture for a 500 MW electric generating plant.

At this time, there is no large-scale or demonstration work on pyrolysis being sponsored by the ERDA fuels from biomass program. Bench-scale investigations have been carried out in this area in the past as noted in the reference work (1). One may expect, in general, that the San Diego facility for municipal solid waste, to be operated by Occidental (12) as noted earlier, will provide a sufficient demonstration of pyrolysis technology and economics for the production of an oil product from biomass. The same general plant with an increase in operating reactor temperature could be used to produce a substitute, low-BTU gas. Thus, strict pyrolysis technology using one design can be considered to be firmly established with successful demonstration and economics to be decided.

An alternate reactor design and feed concept for pyrolysis is being developed by Garrett (13) on a pilot-scale (< 50 kg per hour; 100 lb per hour). The investigation involves the production of a low-energy gas for small-scale applications (90 metric tons per day; 100 tons per day). A variation of a multiple hearth furnace will be used as the reactor. One novel feature is the use of air for combustion of part of the feed inside the reactor without contaminating the generation of pyrolysis gas with nitrogen. A successful demonstration of this feature will be an important improvement in reactor design.

There are two processes being developed using solution phase hydrogenation. One is for the production of a gas and the other of an oil. In the reference publication, this type of processing was identified as a reaction with carbon monoxide. The discussion on mechanism will not be repeated here.

The process for production of oil was developed by the Bureau of Mines (14). It has been scaled up and operation is scheduled to begin in 1977 under the sponsorship of ERDA. The process pilot plant (Albany, Oregon) will initially be operated using wood chips from the local area. A successful demonstration would prove the feasibility of converting biomass in reactors operating at approximately 300°C with pressure exceeding 240 atm.

A process which uses similar chemistry at higher temperatures (about 600° C) is also being developed by the Wright-Malta Corp. (with ERDA sponsorship) for the production of a low-energy gas (15). The process is to be matched with a novel power generation cycle for the direct production of electricity. This process has the novelty of depending upon *in situ* carbon monoxide as opposed to the Albany facility where carbon monoxide is to be added in relatively large quantities.

The last type of thermochemical technology being developed is partial oxidation. This work is being carried out by Texas Tech University using a 25-kg per hour (50 lb per hour) pilot plant (16). The objective of this investigation is to produce an ammonia synthesis gas from cattle manure and other biomass residues. The novel features of this work include the development of a reactor design which is capable of producing a relatively high concentration of ethylene (5-9 kg ethylene per 100 kg reactable manure) in addition to the synthesis gas. Ethylene can be sold for about twice the value of natural gas on an equivalent energy basis. The reactor conditions can also be adjusted to produce a low-energy gas (2660-4450 cal per liter; 300-500 BTU per SCF). New technology has also been developed by the Tenneco Corporation which may permit the ethylene to be removed from the gas without the thermal efficiency penalty of cryogenic processing. The reaction process has been shown to be autothermal; hence, a relatively high overall thermal efficiency may be expected from the technology (> 60%).

As noted in the reference publication (1), the generation of ammonia synthesis gas would provide a direct substitute for natural gas currently used in 90% of the synthetic ammonia fertilizer industry.

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SECTION 10

REASONABLENESS AND ENFORCEABILITY OF THE CODES

In general, the application of zero-discharge criteria to point sources of pollution would appear to be reasonable and enforceable. There may, however, be exceptions. Some of the dairies in New England would require a prohibitive amount of rock excavation to retain a winter's runoff; the alternative of spreading on snow-covered slopes, particularly in the watershed of a lake, is not environmentally acceptable. Across the continent, a technically correct, but nonetheless ridiculous, prohibition has been placed on allowing the overflow from the drinking troughs of some feedlots in the Imperial Valley to reach agricultural drains. The drains carry the saline leachate from many square kilometers of irrigated land; they flow, in turn, into the New River which consists essentially of the storm and "sanitary" effluent of Mexicali. The very trivial effect of the trough water is to dilute the brine and the sewage, thus rendering them slightly less undesirable.

In many states manure is specifically classified as sewage; in others the law is so vague that such a classification might easily result from interpretations. As long as no discharge occurs, any requirements of treatment processes and effluent standards are academic. In case of accidental discharge under storm conditions less than those permissible under law (10-year, 24-hour or 25-year, 24-hour), however, a stockman might well find himself subject to penalties far more severe than would be justified by the damage actually caused. A similar situation exists in some solid waste codes in which the use of designated landfill sites, permit requirements, and maintenance procedures are specified which are appropriate only to municipal and industrial solid waste disposal while the law, itself, could logically be interpreted to include manure as well.

Enforcing agencies have used good judgement in their handling of such situations to date. It would be well, however, if the laws could be brought into conformity with practice.

As pointed out in Section 7 in the discussion of non-point source pollution, serious potential legal difficulties would exist if attempts were to be made to apply zero-discharge criteria to large areas -- either humid or arid.

There is an inherent irrationality, which seems to have received little attention, in the marked difference in attitude toward the pollution potential of commercial livestock and that of pigeons, waterfowl and dogs. Commercial livestock is continuously scrutinized for disease, suspected cases are isolated promptly, and diseased carcasses are disposed of in a sanitary manner. Can the same be said for the pigeons which infest the rundown districts of many American cities, for the dogs which are "walked" to some neighbor's plot of grass, and for the waterfowl which are often fed on lakes in whose watershed grazing is so carefully regulated?

With the diversity of conditions which exist, and with the unpredictable changes which will occur, it is unreasonable to expect that a legal code can ever be written which will always be equitable. Interpretation and enforcement by reasonable men will remain essential -- and the men can be most effective if they work closely at all stages of the regulatory process with the stockmen's representatives and with the agricultural agencies having field representatives with first-hand knowledge of the stockmen and their problems.

The following checklist was prepared to aid in analysing the state laws and regulations for this report. It is included here since it may prove valuable to state agencies in making revisions and to producers who desire to prepare a more detailed summary of the laws of some particular state than has been provided here.

I. Water Pollution

  A. Legal definition of wastes from animal production activity

    1. sewage
    2. animal waste
      (a) solid and liquid
      (b) liquid
    3. other

  B. Legal exemptions allowed for agricultural operations

    1. basis for exemption
    2. exemption extenuation allowed

  C. Applicability of statutory authority

    1. size of operation
    2. type of operation
    3. location
      (a) surface water
        (1) ponds or lakes
        (2) navigable waterway
        (3) marshes and wetland
        (4) floodplain
        (5) other
      (b) groundwater
      (c) landscape
      (d) zoning
      (e) geologic conditions
    4. disposal of solid wastes
      (a) season
      (b) rate of applicability

    - (c) incorporation into soil
    - (d) other

D. Classification of pollutants

1. biological pathogens
    - (a) allowable impact on man
    - (b) allowable impact on animals
2. chemical
    - (a) types
        - (1) organic
        - (2) inorganic
    - (b) forms
        - (1) suspended solids
        - (2) dissolved solids
3. physical
    - (a) color
    - (b) floatables
    - (c) turbidity

E. Control mechanisms

1. discharge capability
    - (a) no discharge allowed
    - (b) discharge permitted
2. licensing
    - (a) surface water pollution
        - (1) registration of activity and source
        - (2) permit stipulations
            - i. rate of flow
            - ii. volume of flow
            - iii. quality of flow
            - iv. other
    - (b) groundwater pollution
        - (1) registration of activity and source
        - (2) permit requirements
        - (3) other
3. disposal requirements
    - (a) storage of wastes
        - (1) volume
        - (2) storm basis
        - (3) holding time
        - (4) other
    - (b) treatment process
        - (1) specification standards
        - (2) performance
    - (c) institutional standards
        - (1) required approval of plan
        - (2) construction permit
        - (3) post construction inspection
        - (4) other

4. Enforcement of guidelines
    - (a) institutional standards
        - (1) administrative agency
        - (2) court
    - (b) legal penalty
        - (1) fine
        - (2) injunction
        - (3) other

II. Air Pollution

A. Legal definition of atmospheric emissions from animal production activities

1. odor
    - (a) non-pollutant
    - (b) air pollutant
        - (1) defined threshold level
        - (2) identification of source
            - i. inspection and measurement by agency
            - ii. complaint basis
            - iii. other
2. dust
    - (a) non-pollutant
    - (b) air pollutant
        - (1) defined threshold level
        - (2) identification of source
            - i. inspection and measurement by agency
            - ii. complaint basis
            - iii. other
3. other gases
    - (a) type and allowable level
    - (b) identification as pollutant
        - (1) inspection and measurement by agency
        - (2) complaint basis
        - (3) other
4. nuisance

B. Legal exemptions allowed for agricultural operation

1. basis for exemption
2. exemption extenuation allowed

C. Application of statutory authority

1. episode occurrence
    - (a) complaint basis
    - (b) periodic inspection by regulatory agency
2. registration of activity
3. zoning ordinance
4. other

D. Control mechanism

1. periodic inspection
2. required treatment
    (a) process changes
    (b) housekeeping
        (1) cleaning
            i. removal of waste
            ii. washing of surfaces
            iii. other
        (2) storage of wastes
        (3) other
    (c) removal of pollutant

E. Enforcement of guidelines

1. institutional authority
    (a) administrative agency
    (b) court
2. legal penalty
    (a) fine
    (b) injunction
    (c) other

III. Solid Wastes

A. Legal definition of wastes from animal production activities

1. animal wastes included in the definition of solid wastes and controlled by responsible agency
2. animal wastes not included in the definition of solid wastes
3. animal waste included in definition but exemption made for agricultural wastes as to control measures taken by responsible agency
4. other

B. Applicability of statutory authority

1. size of animal production operation specified
2. type of production operation facility
3. type of waste generated at animal production facility
    (a) crop residue
    (b) animal waste
        (1) bedding and manure
        (2) manure
    (c) general waste from farm dwellings and production facilities
    (d) dead livestock
4. location of land disposal site for animal wastes
    (a) on-site
    (b) off-site
5. reuse of wastes
    (a) manure as animal food

        - (1) non-commercial use
            - i. exemption from registration
            - ii. non-exemption
        - (2) commercial use
            - i. registration required
            - ii. manure types specified
            - iii. processing requirements outlined
    - (b) manure as a fertilizer ingredient
        - (1) registration
            - i. commercial use
            - ii. non-commercial use
        - (2) processing restrictions

C. Control measures

- 1. registration
    - (a) source
    - (b) disposal site
    - (c) other
- 2. permit process
    - (a) on-site storage and disposal
        - (1) collection frequency
        - (2) storage requirements
        - (3) disposal specifications
            - i. land application rates
            - ii. frequency of application
            - iii. time of application (season)
            - iv. other
        - (4) refeeding manure
    - (b) off-site transport disposal and reuse of agricultural wastes
        - (1) transport restrictions specified
        - (2) landfill practices for animal waste
            - i. specific practices outlined
            - ii. treatment as other landfill waste allowed
        - (3) land application practices for off-site use specified
        - (4) reclamation restriction outlined
            - i. food ingredient
            - ii. fertilizer component

IV. Other Regulatory Factors Pertinent to Animal Production Operations

A. Applicable statutory land use regulations for activity

- 1. basis for land use regulations
    - (a) proximity of residential areas
    - (b) resource protection
        - (1) recreation
        - (2) historic site
        - (3) scenic or aesthetic
        - (4) other
    - (c) other

2. authority for land use control
    - (a) municipality
        - (1) within jurisdiction only
        - (2) outside city boundaries
    - (b) county
        - (1) all areas in the county
        - (2) limited to non-incorporated areas in the county
    - (c) other

3. penalties for non-compliance
    - (a) fines
    - (b) prohibition of practices
    - (c) required treatment
    - (d) other

B. Sanitation

1. sanitary conditions of premises specified
    - (a) exemption
    - (b) basis for exemption
        - (1) type operation
        - (2) number of units
        - (3) other

2. insect vector and rodent control
    - (a) threshold level specified
    - (b) basis for control
        - (1) inspection by agency
        - (2) complaint basis

3. treatment and disposal of human waste generated at production facility specified

4. animal health requirements specified
    - (a) feeding practices
        - (1) manures
        - (2) other
    - (b) shelter requirements
    - (c) manure accumulations
    - (d) disposal of dead animals
    - (e) sale and transport of animals and animal products
    - (f) handling of wastes from diseased animals

C. Nuisance

1. initiation of regulatory activity
    - (a) court
    - (b) administrative agency
    - (c) other

2. basis for nuisance
    - (a) insects and rodents
    - (b) odor
    - (c) dust
    - (d) noise
    - (e) other

SECTION 11

RESEARCH NEEDS

The National Commission on Water Quality recommended that

> . . . the Congress re-enforce the mandate and provide adequate financing to accelerate research directed toward the development and demonstration of promising techniques for recycling, reuse, land application and other resource-conserving options for waste management, and that the Congress further encourage:
>
> 1. Increasing efforts by industry, agriculture and the public sector, directed toward the development, refinement and application of sound control technologies and treatment options that conserve and reuse water, resources of the production process, and water-borne nutrients in human and animal waste; . . . and
>
> 3. Appropriate use of the resulting waste management techniques, through an Environmental Protection Agency-sponsored technical assistance program, to advise communities, industries and agricultural dischargers on the availability and adaptability of cost effective and environmentally sound treatment options to meet the needs of these dischargers.

Specifically, these goals could well include continuing research on the following problems:

1) the development of improved methods, equipment, and facility design to reduce the costs and increase the effectiveness of manure handling;

2) the development of models combining hydrologic and water quality parameters in a manner to identify the quality of runoff from animal point sources, manure storage areas, etc. at various distances from these sources;

3) the determination of long-term effects of nitrate concentrations and salinity of land-spread manure on the drainage waters;

4) the determination of the freeboard necessary to comply with the requirements of retaining runoff from the 24-hour, 25-year or other desigated storms;

5) the behavior of ponds -- nitrogen transformations, seepage, algae, thermal phenomena, etc.;

6) the means of restricting infiltration;

7) the development of rapid monitoring techniques;

8) the perfection of the many alternatives to land disposal -- refeeding, thermochemical, protein production by fly larvae, algae, or other life forms, etc.;

9) the development of sound criteria for site selection; and

10) the development of effective zoning criteria to protect animal agriculture from encroaching suburbia.

With proper management, the environmental impact of manure disposal can be minimized to a negligible level. Anything which can be done, however, to reduce costs and to promote resource recovery will help maintain a viable agriculture and, thus, a more self-sufficient nation.

APPENDIX A

OREGON'S REGULATIONS ON ANIMAL WASTE CONTROL FACILITIES

DEPARTMENT OF ENVIRONMENTAL QUALITY

CH. 340
DIVISION 5
Subdivision 1

CONFINED ANIMAL FEEDING OR HOLDING OPERATIONS

Statutory Authority: ORS 449.081;449.082;449,086,
Chapter 648, Oregon Laws 1971

[ED. NOTE: Unless otherwise specified, sections 51-005 through 51-080 of this chapter of the Oregon Administrative Rules Compilation were adopted by the Department of Environmental Quality January 24, 1972 and filed with the Secretary of State February 3, 1972 as DEQ 34.]

51-005 PURPOSE. It is the purpose of these regulations to protect the quality of the environment and public health in Oregon by requiring application of the best practicable waste control technology relative to location, construction, operation and maintenance of confined animal feeding or holding facilities and operations.

51-010 DEFINITIONS. Unless the context requires otherwise, as used in these regulations:

(1) "Department" means the Oregon Department of Environmental Quality.

(2) "Confined feeding or holding operation" means the concentrated confined feeding or holding of animals or poultry, including but not limited to horse, cattle, sheep or swine feeding, dairy confinement areas, slaughterhouse or shipping terminal holding pens, poultry and egg production facilities and fur farms, in buildings or in pens or lots where the surface has been prepared with concrete, rock or fibrous material to support animals in wet weather or where the concentration of animals has destroyed the vegetative cover and the natural infiltrative capacity of the soil.

(3) "Person" means the state, any individual, public or private corporation, political subdivision, governmental agency, municipality, industry, copartnership, association, firm, trust, estate or any other legal entity whatsoever.

(4) "Waste control facility" means all or any part of a system or systems used in connection with a confined feeding of holding operation for the
  (a) control of drainage,
  (b) collection, retention, treatment and disposal of liquid wastes

or contaminated drainage waters, or

(c) collection, handling, storage, treatment or processing and disposing of manure.

(5) "Waters of the State" include lakes, bays, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Pacific Ocean within the territorial limits of the state of Oregon, and all other bodies of surface or underground waters, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters which do not combine or effect a junction with natural surface or underground waters) which are wholly or partially within or bordering the state or within its jurisdiction.

51-015 NEW, MODIFIED OR EXPANDED FACILITIES AND OPERATIONS. A person constructing or commencing to operate a confined feeding or holding operation or waste control facility, or substantially modifying or expanding an existing confined feeding and holding operation or waste-control facility shall first submit detailed plans and specifications for said facility and operation and other necessary information to the Department and obtain approval of the proposed facility and operation from the Department in writing.

(1) Plans and specifications and other information to be submitted shall constitute a complete, descriptive proposal and should include, to the extent that such information is pertinent and available, the following:

(a) Location map showing ownership, zoning and use of adjacent lands and location of the proposed confined feeding or holding facility or operation in relation to residences and domestic water supply sources.

(b) Topographic map of the proposed site showing the natural drainage pattern and the proposed surface water diversion and area and roof drainage control system or systems.

(c) Climatological data for the proposed site describing normal annual and seasonal precipitation quantities and patterns, evaporation rates and prevailing winds.

(d) Information regarding the occurrence of usable groundwaters and typical soil types in the area of the proposed site and disposal areas.

(e) Estimated maximum numbers and types of animals to be confined at the site at any one time and estimated volume of wastes to be collected and disposed of.

(f) Detailed plans and specifications and procedures for wastewater and manure collection, handling, retention, storage, treatment and disposal systems.

(g) Details of feed preparation, storage, handling and use and proposed methods and facilities for controlling wastes that are likely to result therefrom.

(h) Any additional information which the Department may reasonably require to enable it to pass intelligently upon the effects of the proposed confined feeding or holding operation upon environmental quality.

(2) Receipt of applications and a preliminary evaluation of completeness shall be made within 14 days to all applicants. Written notice of approval or disapproval will be issued by the Department to the applicant within 45 days of receipt of complete plans and specifications. Any notice of disapproval will contain itemized deficiencies.

(3) New or substantially modified or expanded facilities or operations

shall be constructed in accordance with plans and specifications as approval in writing by the Department.

51-020 CONSTRUCTION, OPERATION AND MAINTENANCE REQUIREMENTS. All waste control facilities and confined feeding and holding operations shall be designed, constructed, maintained, and operated in accordance with the following:

(1) All confinement areas, manure handling and accumulation areas and disposal areas and facilities shall be located, constructed, and operated such that manure, contaminated drainage waters or other wastes do not enter the waters of the state at any time, except as may be permitted by the conditions of a specific waste discharge permit issued in accordance with ORS 449.083.

(2) Unless it can be demonstrated that contaminated drainage can be effectively controlled by other means, or unless a specific written variance is obtained from the Department as provided in Section 51-025, the design, construction, operation and maintenance of confined feeding and holding operations and waste control facilities shall be in conformance with "Guidelines for the Design and Operation of Animal Waste Control Facilities." (sections 51-050 through 51-080).

51-025 VARIANCES FROM SPECIFIED REQUIREMENTS. (1) The Department may by specific written variance waive certain requirements of these regulations when size of operation, location and topography, operational procedures, or other special conditions indicate that the purpose of these regulations can be achieved without strict adherence to all of the requirements.

(2) The Department may, in accordance with a specific compliance schedule, grant reasonable time for existing confined feeding or holding operations to comply with these regulations.

51-030 ADVISORY COMMITTEE. At the request of the animal industry, provision is made for a 13-man committee to serve in an advisory capacity to the Department of Environmental Quality on problems related to the location, construction, operation and maintenance of confined animal feeding and holding operations. The advisory committee will include one member each from:

(1) Oregon Horsemen's Association
(2) Oregon Dairymen's Association
(3) Oregon Sheep Growers Association
(4) Oregon Purebred Swine Growers Association
(5) Oregon State Fur Breeders Association
(6) Oregon State Department of Agriculture
(7) Department of Animal Science, Oregon State University
(8) Western Oregon Livestock Association

and divisional representation from:

(1) Oregon Cattlemen's Association (Producer representative and feeder representative)

(2) Oregon Poultry Council (Oregon Turkey Improvement Association representative, Oregon Poultry Growers Association and Oregon Broiler Growers Association representatives).

Each member will be appointed by the presiding officer of the organization he represents and will serve at the pleasure of the organization. The Department shall not be liable for any of the expenses of the advisory committee or its individual members.

GUIDELINES FOR THE DESIGN AND OPERATION OF ANIMAL WASTE CONTROL FACILITIES

51-050 SCOPE. The guidelines contained in this section are recommendations for design and operation of animal waste control facilities and are intended to supplement "Regulations Pertaining to Location, Construction, Operation and Maintenance of Confined Animal Feeding or Holding Operations." They convey many of the criteria considered by the Department of Environmental Quality to conform to best practicable design and operational practices. Alternative methods of control will be acceptable if they can be shown to provide fully equivalent control. Compliance with these guidelines will in most instances constitute satisfactory performance of the design and operation functions to which the "Regulations..." apply. Any disapproval of submitted plans, or requirement to improve facilities or their operation, by the Department, will be, insofar as possible, referenced to applicable guidelines or appropriate sections of the "Regulations."

51-055 DRAINAGE AND WASTE VOLUME CONTROL. (1) Roof drainage and uncontaminated surface drainage should be diverted such that it is not allowed to flow through confinement areas or enter waste water holding lagoons, sumps or tanks, unless it can be demonstrated by detailed design and proven operational practices that wastes and contaminated drainage waters can be effectively controlled by other means.

(2) Where large winter use confinement areas are exposed to heavy rainfall, and wastewater storage and disposal capacities are limited, such areas should be covered to minimize wastewater volume.

(3) Waste collection systems utilizing water for flushing manure from floors should minimize water use, and washwater reuse practices should be employed wherever possible.

(4) Animal drinking water and atmospheric control sprays should be managed such that drainage through contaminated areas is minimized.

51-060 COLLECTION AND STORAGE FACILITIES. (1) Liquid Manure Systems.

(a) When waste holding lagoons are used to accumulate manure and contaminated drainage waters they should have sufficient usable capacity to contain the maximum accumulated rainfall and manure runoff from the entire collection area for the maximum expected period of accumulation. (As a generalized rule of thumb for design, ponds with capacity equal to 1/2 the average annual rainfall over the entire collection area will usually provide adequate operating and reserve capacity to catch 1 in 10 year peak storm runoff from a feedlot.)

(b) Waste holding lagoons and collection sumps should be constructed to provide for at least annual removal of accumulated solids to maintain effective storage capacity.

(c) Earth dikes should be constructed of good quality soil material, well compacted during construction, with sideslopes consistent with accepted earthfill practices for the materials used and stabilized with vegetation recommended by the Agricultural Extension Service, immediately following construction.

(d) Waste holding lagoons or collection sumps with earth dikes should be constructed with overflow relief structures to prevent a washout in the event of failure in other parts of the system.

(e) Where unusually windy conditions prevail, or surface aeration equipment is used, dikes should be protected to prevent erosion.

(f) Reinforced concrete manure holding tanks should be constructed in accordance with, or at least equivalent to, specifications for steel placement and concrete quality contained in a design which has been prepared by or has been reviewed and found acceptable by a qualified structural engineer.

(g) Where seasonal groundwater levels rise above the bottom of a below-ground-level tank, drain tile should be laid at the base of the tank before it is backfilled.

(2) Solids Handling Systems.

(a) Manure solids should be collected, stored, and utilized or disposed of with a minimum of water (or rainfall) addition, in a manner which will prevent water pollution and minimize the production of flies and odors.

(b) Where large accumulations of manure are stored during winter months, contaminated drainage collection and holding or disposal facilities should be provided.

51-065 CONVEYANCE FACILITIES AND PRACTICES. (1) Liquid manure irrigation systems should have delivery mains buried wherever practicable to minimize the amount of pipe exposed to the hazards of surface damage and failure.

(2) Trucks or tank wagons carrying manure or manure slurry on public roads should be of water tight construction and sufficiently closed or baffled to prevent spillage of any kind.

(3) Manure slurry delivery pipelines crossing streams or gullies should be permanently placed with adequate protection from streamflow hazards and/or braced to prevent excessive bending stress in the pipe.

51-070 DISPOSAL FACILITIES AND PRACTICES. (1) Liquid Manure Disposal.

(a) When slurry is spread by tank wagon or truck, a predetermined plan of uniform coverage should be established and adhered to. Under no circumstances should a tank be drained when not in motion across suitable receiving land.

(b) Liquid manure irrigation systems should be operated according to a predetermined plan of rotation to insure uniform coverage and prevent prolonged ponding or surface runoff from excessive applications. Leaks and sprinkler head malfunctions should be repaired immediately.

(c) The selection of equipment for land disposal should be based upon land configuration, labor requirement, and long term dependability of the system and its components.

(d) Adequate land should be provided on a year-round basis for effective assimilation of all manure slurry applied, regardless of the method of application used. Land with poor vertical drainage characteristics, high water table or steep slopes should not be selected for use in a year-round plan of manure disposal.

(e) The vegetative cover on disposal land should be harvested or grazed regularly to prevent thatch accumulations of mature grasses and weeds.

(f) Livestock should not be permitted to graze the disposal area during periods of saturated soil conditions.

(g) Seepage basins should not be used except where it can be demonstrated that groundwater pollution will not result.

(2) Solids Disposal.

(a) Field spreading of manure should be uniform in distribution and limited in quantity to the capacity of the land to retain it.

(b) Manure should not be stored or deposited where it can be washed into the surface drainage.

(c) Manure solids should not be used as a fill or land raising material where they will pollute ground or surface waters.

(d) All dead animals should be promptly collected and disposed of in an approved manner.

51-075 INCIDENTAL CONTROL PRACTICES. (1) The application of manure or manure slurry to land areas should be accomplished when air movement is least likely to carry objectionable odors to residential or recreational areas.

(2) New confined feeding or holding facilities should not be located where prevailing winds are likely to carry odors into residential or recreational areas. Attention should also be given to expansion of suburban areas and the stability of local zoning restrictions in locating new operations or substantially expanding existing operations.

51-080 SOURCE OF QUALIFIED ASSISTANCE FOR DESIGN OF FACILITIES.

(1) Where drainage control, structural or mechanical facilities are sufficiently large or complex to require specialized professional design, the Department of Environmental Quality may require that detailed plans and specifications be prepared by a qualified engineer for approval prior to construction.

(2) Appropriate design services are available through:

(a) USDA - Soil Conservation Service.

(b) USDA - Oregon State University Extension Service and associated plan services.

(c) Various equipment manufacturers.

(d) Independent consulting engineers.

Useful design information is often available through:

(a) County extension offices and Agricultural Experiment Stations.

(b) Department of Envrionmental Quality engineering staff.

(c) Oregon State University Departments of Agricultural Engineering and Animal Science.

(d) Certain power companies and irrigation districts.

(e) Climatological data reporting services (Oregon State University and state climatologist).

(f) Other livestock operations which have waste control facilities in operation.

(g) Various livestock production associations.

(h) Soil and Water Conservation Districts offices.

(3) Where long range operational planning appears necessary to development of a workable waste control and disposal system, the Department of Environmental Quality may request that special planning assistance be obtained from Oregon State University and recommendations therefrom be included in the proposal submitted.

(4) Any dam or dike in excess of ten feet in height, or any impoundment volume in excess of 9.2 acre feet is required by state laws to be designed by a qualified engineer and approved by the office of the State Engineer.

A copy of "Rules and Regulations of the State Engineer", published annually, should be obtained prior to designing a facility of this type.

(5) Approval by the Department of Environmental Quality of a confined feeding or holding operation does not relieve the applicant from his obligation to comply with other pertinent federal, state or local statutes, regulations or ordinances.

APPENDIX B

EXCERPTS FROM THE SERIES "HOW TO CONTROL FEEDLOT POLLUTION" ISSUED BY THE CALIFORNIA CATTLE FEEDERS ASSOCIATION.

[ED. NOTE: The following excerpts are indicative of the extent to which producers' organizations have voluntarily cooperated in environmental improvement. The CCFA is by no means unique in having such a program.]

THE CCFA "CONTROL OF FEEDLOT POLLUTION" PLAN

PHASE I - OBJECTIVES

1. To determine methods and agents now used in other industries for the control of dust.
2. To seek out new compounds and methods that have dust control capabilities.
3. To consult with firms and agencies considered to be able to contribute significant knowledge or technology toward solving the problem of dust emission from cattle feed yards.
4. Study present standards, sampling methods, analytical techniques, etc., used by regulatory agencies responsible for the monitoring of air pollution.
5. To investigate the availability of federal funds to be used in a long range research project to study the control of air, soil and water pollution and feedlot manure utilization.

RESULTS

1. A contract was made with a California firm to conduct a literature search on the subject from January 1965 to the present. This report has been finished and is available.
2. Messrs. Algeo & Elam have reviewed all of this material. Summaries of some of the material are included in this bulletin.

PHASE II - OBJECTIVES

To determine the most feasible and economical methods of controlling feedlot dust pollution problems in various geographic and climatic areas of California. This will be done through a series of experiments conducted at various feedlots throughout the State during the summer of 1970. Three technical evaluation teams of 2 men each will supervise this work. The personnel will be primarily from University, Extension, and State College personnel on a summer employment program.

RESULTS

These will be available in late 1970 and will be published in a forthcoming bulletin.

Bulletin A, p. 3-4. May 28, 1970.

This work was financed entirely by the California Cattle Feeders Association. Although we are considered by some to be prejudiced in favor of our feedlot industry, this work was performed in a completely impartial manner. We support the findings and if anyone can deny or refute them, please step forward.

The work was done because we feel that the regulatory agencies do not have accurate suggestions and answers available upon which to base control and regulation of the industry on this subject. This Industry stands ready to work with any and all groups on this environmental problem. In the coming months we plan to continue research test work on dust on some more refined aspects; work on feedlot odor and as a long range project, research on cattle manure disposition usage. We hope to have joint financing research on this last project with governmental agencies and other livestock groups.

Bulletin C, "Measurement and Control of
Feedlot Particulate Matter," Preface.
January 12, 1971.

Bulletin D covers the results of the test work done during the summer of 1971 at 26 member feedlots throughout the State of California. The results of this work are, we believe, very significant at this time, particularly because various regulatory agencies are in disagreement over standards on certain phases which have been set by EPA, Washington, D. C. The California Cattle Feeders Association and the people who were responsible for this research stand behind the results and interpretations. If anyone has information to refute these opinions, we urge that they come forward and state their case.

During the past 2-1/2 years (since Nov. 1969), it has been our aim to step out ahead and come up with ideas and principles for use by the feedlot industry, particularly this industry in California. We believe we have certain situations connected with the environment which are unique to the desert dry areas and which the federal regulatory agencies have pretty much ignored to date.

Thus far, our Association has spent more than $50,000.00 of member funds in this work. In addition, practically every member has himself invested dollars into new facilities and equipment to "control his own destiny" in the realm of the environment. For example, the average 10,000 head capacity feedlot probably has spent $20-30,000.00 in connection with the ecology of his business.

This Industry and the CCFA solicit the support of all who desire to improve the livestock environment in a manner which recognizes that the business community has certain rights as well as responsibilities as citizens.

Bulletin D, "Feedlot Air, Water and Soil
Analysis," Preface. June 1972.

The enclosed information is therefore to be considered the best we as an Industry know how to create. Implementation of these rules and guidelines will cost the feedlots money, but we believe in most instances we can live with them. They will, we believe, enable us to meet our responsibilities as concerned business citizens.

You will notice that our information is related to cattle feedlots only. Feedlots are dry type feeding activities. Dairies, Swine Yards, Bottle-Fed Calf Lots, and some other types of feeding activities are vastly different because of the nature of their pens and the need for considerable quantities of wash water. Other confined animal facilities which you may wish to concern yourself with are:

1. Dairies
2. Bottle-Fed Holstein Calf Lots
3. Seasonal Cattle Growing Lots
4. Sheep Lots - Goat Lots
5. Swine Yards
6. Poultry Operations
7. Turkey Operations

Many of our guidelines, definitions, etc., are equally applicable to the above other types of confinement activities but I feel we ought not to be the judge of their problems and solutions to them.

We are available at any time to consult and further explain our Association work in the area of feedlot pollution. We have published several bulletins containing test work results. These are available at $3.00 each. We hope this approach to you will be the beginning of a close working relationship that will result in our Industry meeting the various environmental goals..."

F. M. SIMPSON, Jr.
MANAGER-SECRETARY
CALIFORNIA CATTLE FEEDERS ASSOCIATION
BAKERSFIELD, CALIFORNIA

Bulletin F, "Suggested Guidelines for
County Use in Connection with Dry Feedlot Environmental Problems." p. 1-2.
June 1973.

APPENDIX C

METRIC CONVERSION FACTORS

1 foot = 0.3048 meters
1 inch = 0.0254 meters
1 acre = 0.4047 hectares
1 acre-foot = 1233.5 cubic meters
1 pound = 0.4534 kilograms